NW NATURAL'S RESPONSE
TO U.S. EPA CERCLA SECTION 104(e)
INFORMATION REQUEST

NW Natural ("NWN") objects to the information request as unduly burdensome and overbroad in that the documents sought and questions asked are repetitive, cumulative and seek information that is neither relevant to an actual or threatened release of a hazardous substance to the Portland Harbor Superfund Site nor likely to lead to the identification of the need for or nature of potential response actions at the Site. Further, the information request seeks information and documents protected by the attorney-client privilege and work product doctrine or that include confidential business information or protected critical energy infrastructure information.

The information request seeks information and documents spanning nearly 150 years and multiple properties. NW Natural has prepared this response in good faith using the best information available to the Company upon reasonable inquiry. Given the breadth of the information request and the time allowed by EPA to respond to it, however, the response is necessarily incomplete. As noted in EPA's cover letter, NW Natural may supplement the response if additional information becomes available or known to NW Natural after submission of this response. EPA's April 8, 2008 response to the 104(e) information request recipients' consolidated comments seeking clarification of the request provides additional guidance for responding to this information request. NW Natural has focused its responses based on this guidance, in particular EPA's instruction to use best professional judgment in interpreting the questions and EPA's clarification that it is not seeking duplicative information.

NW Natural responds to this information request with the understanding, based upon discussions with EPA's attorneys, that the information request does not seek information generated pursuant to the EPA Administrative Settlement Agreement and Order on Consent for Remedial Investigation/Feasibility Study for the Portland Harbor Superfund Site (U.S. EPA Docket Number CERCLA-10-2001-0240).

Section 1.0 Respondent Information

1. Provide the full legal, registered name and mailing address of Respondent.

Response: Northwest Natural Gas Company, d/b/a NW Natural
220 NW Second Avenue
Portland, Oregon 97209

2. For each person answering these questions on behalf of Respondent, provide:

a. full name;

b. title;

c. **business address; and**

d. **business telephone number, electronic mail address, and FAX machine number.**

Response:

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3. **If Respondent wishes to designate an individual for all future correspondence concerning this Site, please indicate here by providing that individual's name, address, telephone number, fax number, and, if available, electronic mail address.**

Response:

Robert Wyatt
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With a copy to:

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Section 2.0 Owner/Operator Information

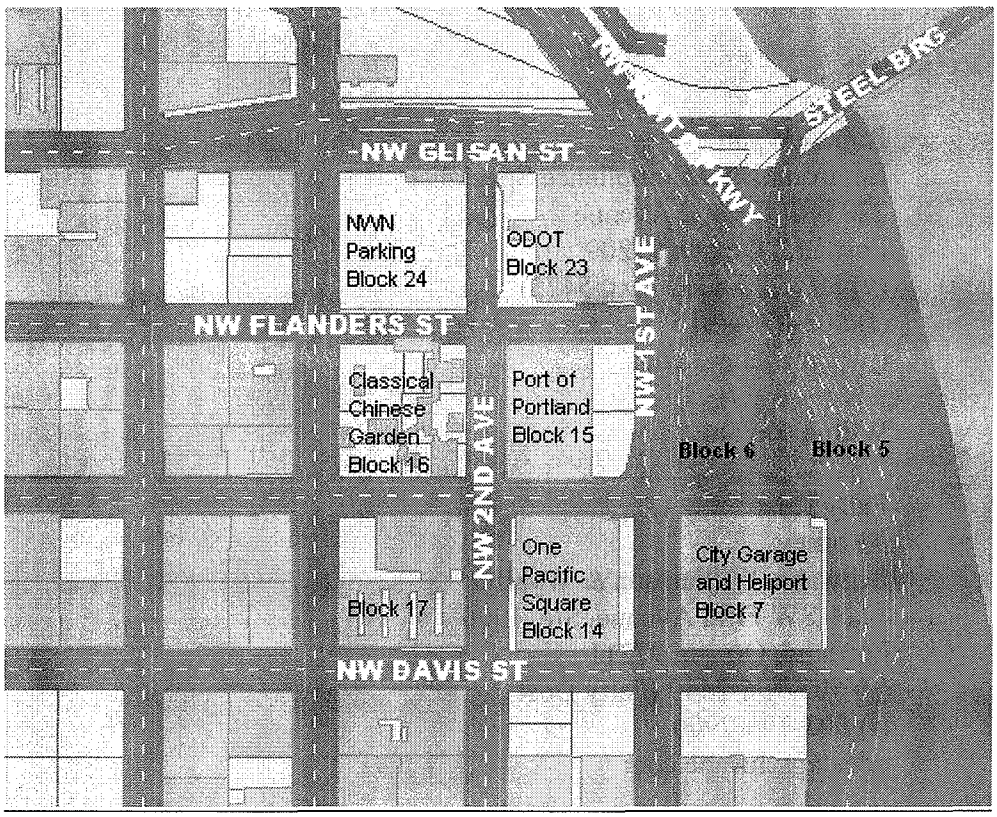
4. **Identify each and every Property that Respondent currently owns, leases, operates on, or otherwise is affiliated or historically has owned, leased, operated on, or otherwise been affiliated with within the Investigation Area during the period of investigation (1937 — Present). Please note that this question includes any aquatic lands owned or leased by Respondent. Also provide responses to all Questions in this Information Request for any Property you currently own, lease, operate on, or otherwise are affiliated or historically have owned, leased, operated on, or otherwise been affiliated with within 800 feet of the Willamette River between River Miles 12**

and 16. Relative to any manufactured gas plant or other oil or coal gasification facility owned or operated from RM 1 through 16, please provide responses to all relevant questions even if operated prior to 1937.

Response:

NWN objects to the term "affiliated" as vague, ambiguous and overbroad. For example, NWN provides natural gas service to thousands of properties within the Investigation Area. NWN interprets the Request for Information #4 to seek information concerning properties it may have owned or operated within the meaning of CERCLA § 107 and ORS 465.255.

- Property in Couch's Addition



Block 5— was formerly located between Front Avenue and the Willamette River, bordered by NW Flanders and Everett Streets. Today, Block 5 is partly covered with a bridge foundation, and partly with a city park that parallels the seawall along the Willamette River. (NWN0010829.)

As indicated in the table below, the founders of the Portland Gas Light Company, H.C. Leonard and John Green, purchased the property in 1859, and a coal gas plant began operation in 1860. Ownership was transferred to Portland Gas Light Company in 1864.

Portland Gas Light Company operated a manufactured gas plant ("MGP") at the property until 1892, when the Portland Gas Company bought Portland Gas Light Company. The Portland Gas Company operated the MGP until 1910 when the Portland Gas & Coke Company ("PGC") bought the company. In 1913, PGC ceased operations at the Portland Gas Manufacturing site.

In the 1920s, the City of Portland constructed a seawall along the Willamette River at the property. The City of Portland acquired the property from PGC in 1942 in connection with the Front Avenue Improvement Project. The City of Portland then constructed a roadway along Block 5. The property is now part of the Tom McCall Waterfront Park. Property ownership information contained in NWN's files is listed in the table below:

DATE BOUGHT	PURCHASER	PROPERTY DESCRIPTION	DOC BATES #
10/18/1859	H.C. Leonard and John Green from (b) (6) (b) (6)	Block 5, Couch's Addition, Lots 3, 4	NWN0000345
1/3/1862	H.C. Leonard and John Green from (b) (6) (b) (6)	Block 5, Couch's Addition; Lot 1	NWN0000376
10/24/1864	Portland Gas Light Co. from (b) (6) (b) (6)	Block 5, Couch's Addition, Lot is listed only as "that certain lot tract"	NWN0000370
9/16/1940	City of Portland	Block 5, Couch's Addition (NW Flanders/Front Ave./Everett St./Willamette River). This is a descriptive document and not a Legal Deed	NNG409010
10/27/1942	City of Portland from Portland Gas & Coke Co.	Block 5, Couch's Addition; (all lots)	NWN0000361

Block 6— was formerly located between 1st and Front Avenues, bordered by NW Flanders and Everett Streets.

The Portland Gas Light Company acquired Block 6 in 1859. According to a Sanborn map from 1901, Block 6 was used principally as a coal depot, and also for storage and office space. According to later maps, the block also contained a relief holder and storage tank, and for the last few years of gas manufacturing

operations, purifiers. By 1940, the property was the site of a pipe dipping shed and pipe storage. (NNG409010, -9024.)

According to property deeds obtained by Ecology & Environment in approximately 1986, PGC owned block 6 until 1946 when the City of Portland started road construction at the property. (NWN0010829.) Currently, block 6 is covered with roads and access ramps for the Steel Bridge. (NWN0010829.) Property ownership information contained in NWN's files is listed in the table below:

DATE BOUGHT	PURCHASER	PROPERTY DESCRIPTION	DOC BATES #
8/30/1859	Portland Gas Light Co. from (b) (6) (b) (6)	Block 6, Couch's Addition, "Fractional Lot"; and Block 5, Couch's Addition, Lot 2	NWN0000349
11/16/1877	C.S. Schenck and George Weidler from Portland Gas Light Co.	Block 6, Couch's Addition; NW Corner running South on 1st Street, 50 ft. East to Front St. (More particularly described as "commencing at the NW corner of Block 6...running South on First St. fifty feet thence East to F St. on Street on a line parallel with F Street; thence following the line of Front street to the NE corner of Block No. six; thence along F Street to the place of beginning.")	NWN0000380

Block 7—is located between Naito Parkway and 1st Avenue, and bordered by Everett and Davis Streets. The address is 202 NW 1st Avenue as well as 33 NW Davis, Portland, Oregon 97209. The Property I.D./Alt. Account number is R140320/R180200030. The property is currently a City-owned parking garage and Heliport. Until recently, the Heliport has been operated by the Northwest Rotorcraft Association.

NWN's predecessors owned the northern half of Block 7. NWN has no documentation of the Company's activities at the property. A 1901 Sanborn map

does not illustrate any activity at the property. (NNG411776.) A 1908 Sanborn map displays a storage tank at the SW corner of Everett and Front Avenue. (NNG411777.) PGC sold its interest in the northern half of Block 7 in 1937.

From at least the 1960s until the 1980s, Broadway Cab Company operated a taxi cab service at Block 7. A 1950 Sanborn map illustrates commercial activities at the property, including pipe storage. (NNG 411779.) A leaking underground storage tank removal and remediation was conducted after the property was purchased by the City of Portland, Portland Development Commission in the mid-1980s. (NWN0010553.) The UST had apparently been used by Broadway Cab in its operations. (Id.) According to the City, additional investigation revealed soil contaminated with possible coal tar constituents. (Id.)

Property ownership information contained in NWN's files is listed in the table below:

DATE BOUGHT	PURCHASER	PROPERTY DESCRIPTION	DOC BATES #
2/25/1859	H.C. Leonard from the City of Portland	Block 7 (North half), Couch's Addition (Lots 5, 6, 7, and 8)	NWN0000039
12/07/1872	Herman C. Leonard and John Green from (b) (6) (b) (6)	Block 7, Couch's Addition, (No specific lots listed)	NWN0000028-31
9/5/1895	H.C. Leonard from John Green (1/2 interest)	Block 7, Couch's Addition (North half)	NWN0000032
12/1/1905	Portland Gas Co. from H.C. Leonard	Block 7 (North half), Couch's Addition (Lots 5, 6, 7, and 8)	NWN0000039
12/1/1905	Portland Gas Co. from H.C. Leonard	Block 7 (North half), Couch's Addition (Lots 5, 6, 7, and 8)	NWN0000054
3/1/1937	Minnie Heins Neupert from Portland Gas & Coke Co.	Block 7 (North half), Couch's Addition (Lots 5, 6, 7, and 8)	NWN0000039

Block 14—is located between 1st and 2nd Avenues, bordered by Everett and Davis Streets. The current address is 220 NW 2nd Avenue, Portland, Oregon 97209. The property I.D./Alt. Account numbers are R140353/R180200680. NW Natural acquired the property in 1961. The property is currently occupied by the One Pacific Square building, owned by One Pacific Square CF LLC. NWN leases a number of floors in this building for use as its central offices. Property ownership information contained in NWN's files is listed in the table below:

DATE BOUGHT	PURCHASER	PROPERTY DESCRIPTION	DOC BATES #
10/13/1961	Northwest Natural Gas Co. from Nicolai-Neppach Co.	Block 14, Couch's Addition; Lots 1, 2, 3, 4, 5, 6, 7, and 8	NWN0000073
10/18/1961	Northwest Natural Gas Co. from Nicolai-Neppach Co.	Block 14, Couch's Addition; Lots 1, 2, 3, 4, 5, 6, 7, and 8	NWN0000912; NWN0000922
7/17/1981	Pacific Square Corp. from Northwest Natural Gas Co.	Block 14, Couch's Addition; Lots 1-8 (all)	NWN0000897

Block 15—is located between 1st and 2nd Avenues, bordered by Flanders and Everett Streets. The current address is 121 NW Everett Street, Portland, Oregon 97209. The Property ID/Alt. Account numbers are R140355/R180200800 and R140354/R180200760. Portland Gas Co. first acquired parts of Block 15 in 1904. The property is currently occupied by the Port of Portland building, owned by WREH Portland LLC.

During NWN's and its predecessors' ownership, the property was the site of a shop building, as well as a tool shed, supply and lumber shed, and pipe shed. Property ownership information contained in NWN's files is listed in the table below:

DATE BOUGHT	PURCHASER	PROPERTY DESCRIPTION	DOC BATES #
11/4/1904	Portland Gas Co. from (b) (6)	Block 15, Couch's Addition; Lots 5, 6, 7, and 8	NWN0000073
11/7/1904	Portland Gas Co. from (b) (6)	Block 15, Couch's Addition; Lots 5, 6, 7, and 8	NWN0000057
1/10/1910	Portland Gas & Coke Co. acquired it from Portland Gas Light Co. (the predecessor co.)	Block 15, Couch's Addition; Lots 5-7 out of 1-8 (Flanders St. between NW 1st and NW 2nd Avenue). This is a descriptive document and not a Legal Deed	NNG409010
12/20/1955	Portland Gas & Coke Co. from Portland Trust Bank	Block 15, Couch's Addition; Lot 4 and south half of Lot 5	NWN0000712
10/13/1961	Northwest Natural Gas Co. from Nicolai-	Block 15, Couch's Addition; Lots 1, 2, 3,	NWN0000073

	Neppach Co.	and 4	
10/18/1961	Northwest Natural Gas Co. from Nicolai-Neppach Co.	Block 15, Couch's Addition; Lots 1, 2, 3, and 4	NWN0000912; NWN0000922
8/30/2000	The Port of Portland from Northwest Natural Gas Co.	Block 15, Couch's Addition; Lots 1, 2, 3, 4, 5, 6, 7, and 8	NWN0000080

Block 16—is between 2nd and 3rd Avenues, bordered by Everett and Flanders Streets. The current address is 239 NW Everett Street, Portland, Oregon 97209, Property I.D./Alt. I.D. numbers R140361/R180200920, R140356/R180200840, R140358/R180200860, R140359/R180200880, R140360/R180200900, R140363/R180200960, and R140362/R180200940. This is currently the location of the Portland Classical Chinese Garden.

As shown in the table below, PGC, NWN's predecessor, began purchasing lots at Block 16 in 1955. In approximately 1973, NWN apparently took ownership of the entire block. NWN operated a garage building, as well as company parking at Block 16 until approximately 1999. The entire north half of the block, as well as the south west corner lot was reserved for company parking. (State Fire Marshall, Employer Survey, 2/12/188, NWN0003994.) The garage building included a car wash, two hydraulic hoists, a pump island, one 10,000-gallon UST containing gasoline, and one 750-gallon UST for waste oil. (Spencer, Inc. report to NWN, 2/1/1995, NWN0004803; Pegasus Environmental Management Services, Inc., *UST Removal Status Report for Northwest Natural Gas Company*, 220 NW 2nd Avenue, Portland, Oregon 97209, 8/21/1991; hand-drawn map, NWN0013691.) A map of the site illustrates a waste oil AST, Compressed Natural Gas containers, and other features. (Hand-drawn map included with Hazardous Substance Employer Survey, 1992, NWN0013691; State Fire Marshall, Employer Survey, 2/12/188, NWN0003994.)

After the decommissioning of the USTs on site, and subsurface investigation, Oregon DEQ, in 2005, designated the site as requiring no further action. (NWN0015590.)

In 1999, NWN donated the property, through a 99-year lease with the City of Portland, for the Portland Classical Chinese Garden, which now inhabits Block 16. Property ownership information contained in NWN's files is listed in the table below:

DATE BOUGHT	PURCHASER	PROPERTY DESCRIPTION	DOC BATES #
4/15/1884	(b) (6) (by agreement between he	Block 16, Couch's Addition; Lots 6 and 7	NWN0000740

DATE BOUGHT	PURCHASER	PROPERTY DESCRIPTION	DOC BATES #
	and (b) (6))	(Easterly 30 feet of both)	
4/15/1884	(b) (6) (by agreement between he and (b) (6) (b) (6)	Block 16, Couch's Addition; Lots 8, north half of Lot 5	NWN0000740
10/9/1889	(b) (6) (b) (6) from (b) (6) and (b) (6)	Block 16, Couch's Addition; Lot 5	NWN0000741
6/11/1937	(b) (6) from (b) (6) et ux.	Block 16, Couch's Addition; Lots 5 and 8 (parts of both)	NWN0001366
10/17/1955	Portland Trust Bank from Red Transfer and Storage Co.	Block 16, Couch's Addition; Lot 4 and south half of Lot 5	NWN0000767
12/1/1955	Portland Gas & Coke Co. from Portland Trust Bank	Block 16, Couch's Addition; Lot 4 and south half of Lot 5	NWN0000765
12/16/1955	Portland Gas & Coke Co. from (b) (6) (b) (6)	Block 16, Couch's Addition; Lot 3	NWN0000828
5/20/1957	Portland Gas & Coke Co. from (b) (6) (b) (6)	Block 16, Couch's Addition; Lots 5 and 8 (parts of both)	NWN0000807
5/31/1957	Portland Gas & Coke Co. from Norris, Beggs & Simpson (representing (b) (6) (b) (6)	Block 16, Couch's Addition; Part of Lots 5 and 8	NWN0000637
6/3/1957	Portland Gas & Coke Co. from (b) (6)	Block 16, Couch's Addition; Lots 5 and 8 (parts of both)	NWN0000778
5/7/1963	Northwest Natural Gas Co. from (b) (6) (b) (6)	Block 16, Couch's Addition; Lot 2	NWN0001170
12/20/1971	(b) (6) from (b) (6)	Block 16, Couch's Addition; Lots 5 and 8 (parts of both)	NWN0001390
12/4/1972	Northwest Natural Gas Co. from That Hot Coffee Investments, Inc. and (b) (6)	Block 17, Couch's Addition; Lot 8 (West 24.9 feet)	NWN0001286

DATE BOUGHT	PURCHASER	PROPERTY DESCRIPTION	DOC BATES #
11/2/1973	Northwest Natural Gas Co. from (b) (6) (b) (6)	Block 16, Couch's Addition; Lots 5 and 8 (parts of both)	NWN0000817
2/15/1974	Northwest Natural Gas Co. from (b) (6) (b) (6)	Block 16, Couch's Addition; Lots 5 and 8 (parts of both)	NWN0001337
4/26/1974	Northwest Natural Gas Co. from Union Gospel Mission of Portland	Block 16, Couch's Addition; Lots 6 and 7	NWN0001468
3/14/1975	Northwest Natural Gas Co. from Opera House Laundry	Block 16, Couch's Addition; Lot 1	NWN0001480 & 1502
6/1/1999	City of Portland (lease)	Block 16, Couch's Addition; All Lots	NWN0015548

Block 17—is located between 2nd and 3rd Avenues, bordered by Davis and Everett Streets. NWN owned the north half of this block from 1961 until 1984. NWN used the property for parking and some equipment storage. The current address for the north half of the block is 221 NW 2nd Avenue, Portland, Oregon 97209. The Property ID/Alt. Account number is R140365/R180201020. The current owner is Philanthropy Center LLC.

Property ownership information contained in NWN's files is listed in the table below:

DATE BOUGHT	PURCHASER	PROPERTY DESCRIPTION	DOC BATES #
1/12/1961	Northwest Natural Gas Co. from (b) (6) Executrix of the Estate of (b) (6)	Block 17, Couch's Addition; Lot 8 (East 75.1 feet)	NWN0000888
10/13/1961	Northwest Natural Gas Co. from Nicolai-Neppach Co.	Block 17, Couch's Addition; Lots 5, 6, and 7	NWN0000073
10/18/1961	Northwest Natural Gas Co. from Nicolai-Neppach Co.	Block 17, Couch's Addition; Lots 5, 6, and 7	NWN0000912; NWN0000922
12/4/1972	Northwest Natural Gas Co. from That Hot Coffee Investments, Inc. and (b) (6)	Block 17, Couch's Addition; Lot 8 (West 24.9 feet)	NWN0001286
1/11/1984	Pacific Square Corp. from Northwest Natural	Block 17, Couch's Addition; Lots 5, 6, 7,	NWN001035

	Gas Co.	and 8	
12/21/1984	Portland Chamber of Commerce from Pacific Square Corp.	Block 17, Couch's Addition; Lots 5, 6, 7, and 8	NWN0001028

Block 23—is located between First and Second Avenues, and bordered by Flanders and Glisan Streets. The current address of the property is 123 NW Flanders, Portland, Oregon 97209. The property is currently owned by the Oregon State Department of Transportation.

NWN and its predecessors owned portions of the property beginning in 1903 and owned the entire block by 1905. NWN sold all interest in the property in 1983. (NWN0000227.)

During ownership by Portland Gas Company, a 1.5 million cubic feet storage holder was built on this block by Stacey Manufacturing Company in approximately 1905-1906. (NNG409098, -9141; NNG411777.) The secondary purifiers were located on the eastern portion of the block. (NNG409098, -9130.)

Prior to 1909, Portland Gas Company constructed the "new" meter house, which was located at the SW corner of First Ave. and Glisan St. (the northeast corner of block 23). (NNG409098, -9132.) In addition, a barn, containing stalls for 22 horses, and a shed for storage of company wagons were located along Flanders Street. (Id. at -9133-9134.)

By 1969, all structures, including the holder tank, had been removed from the property and replaced with an office building. (1969 Sanborn map, NNG411779.) Property ownership information contained in NWN's files is listed in the table below:

DATE BOUGHT	PURCHASER	PROPERTY DESCRIPTION	DOC BATES #
7/30/1903	Portland Gas Co. (1/2 interest) from (b) (6) (b) (6) (b) (6)	Block 23, Couch's Addition; Lots 2 and 3	NWN0000170
8/20/1903	Portland Gas Co. (1/2 interest) from (b) (6) (b) (6) et al.	Block 23, Couch's Addition; Lots 6, 7, and 8	NWN0000180
1/4/1904	Portland Gas Co. from (b) (6) (b) (6) (b) (6) et al.	Block 23, Couch's Addition; Lots 1, 2, 3, and 4	NWN0000160
1/4/1904	Portland Gas Co.	Block 23, Couch's	NWN0000168

DATE BOUGHT	PURCHASER	PROPERTY DESCRIPTION	DOC BATES #
	from (b) (6) and (b) (6)	Addition; Lots 1, 2, 3, and 4	
4/4/1904	Portland Gas Co. from The Nicolai Brother Co.	Block 23, Couch's Addition; Lots 6, 7, and 8	NWN0000165
1/11/1905	Portland Gas Co. from (b) (6)	Block 23, Couch's Addition; Lot 5	NWN0000173
8/15/1983	Hayden Corp. from Northwest Natural Gas Co.	Block 23, Couch's Addition; Lots 1-8 (all)	NWN0000227

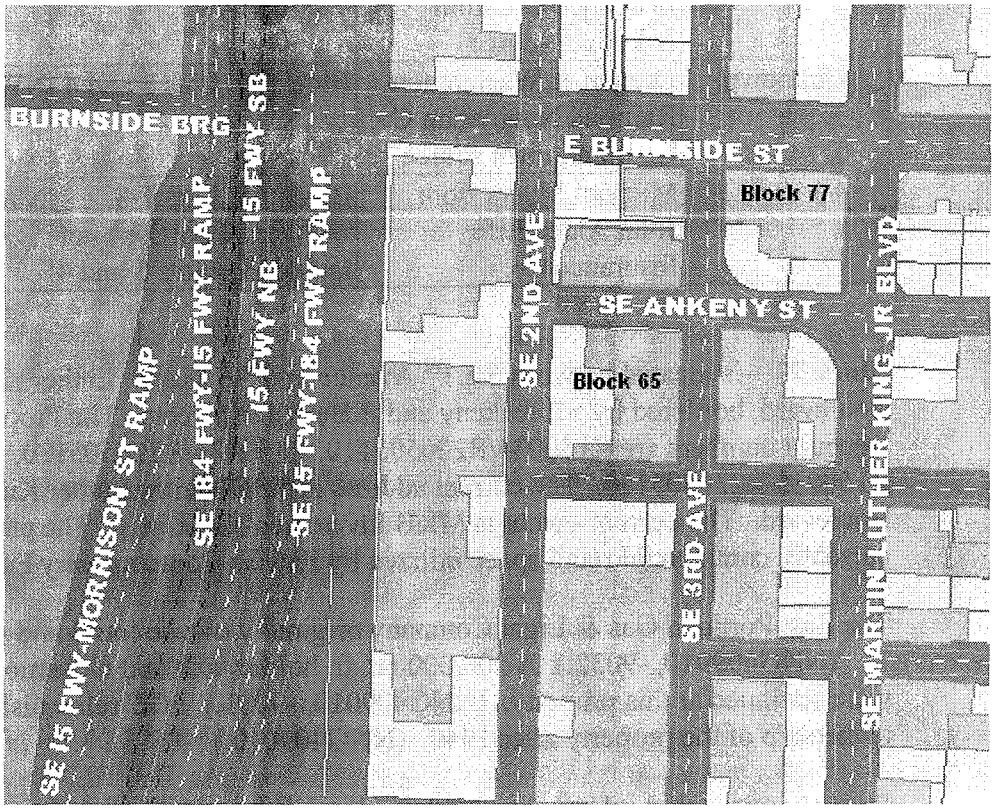
Block 24—is located between 2nd and 3rd Avenues, bordered by Glisan and Flanders Streets. The Property ID/Alt. Account number is R140386/R180201520. NWN is the current owner.

The property is used for company parking and limited storage of some event display materials. Previously, a building on Lot 1 was used as a general store room and the distribution office. (NNG409010.) Property ownership information contained in NWN's files is listed in the table below:

DATE BOUGHT	PURCHASER	PROPERTY DESCRIPTION	DOC BATES #
3/31/1905	Portland Gas Co. from Security Savings Bank	Block 24, Couch's Addition; Lot 1	NWN0000395
1/10/1910	Portland Gas & Coke Co. from Portland Gas Light Co.	Block 24, Couch's Addition, Lots 1, 4, 5, 8, and a tiny portion of 3. (Glisan/Flanders/2nd Avenue.) This is a descriptive document and not a Legal Deed	NNG409010
10/25/1925	Portland Gas & Coke Co. from Portland Realty Board	Block 24, Couch's Addition; Lots 4 and 5 and a tiny portion of Lot 3	NWN0000026
3/9/1926	Portland Gas & Coke Co. from Margaretta Marshall, Vidae Marshall, Margaretta Jones, Laurence Jones, Bessie Wilson, and George Wilson	Block 24, Couch's Addition; Lot 8 (all)	NWN0000004

11/10/1955	Portland Trust Bank from (b) (6), et ux.	Block 24, Couch's Addition; Lot 7 (1/2 half interest)	NWN0000710
12/1/1955	Portland Gas & Coke Co. from Portland Trust Bank	Block 24, Couch's Addition; Lot 7 Block 16, Couch's Addition; Lot 4 and south half of Lot 5	NWN0000765
12/20/1955	Portland Gas & Coke Co. from Portland Trust Bank	Block 24, Couch's Addition; Lot 7	NWN0000712
4/18/1956	Portland Gas & Coke Co. from (b) (6) (b) (6)	Block 24, Couch's Addition; North half of Lot 6	NWN0000653
6/21/1956	Portland Gas & Coke Co. from (b) (6) (b) (6)	Block 24, Couch's Addition; South half of Lot 6	NWN0000697
5/29/1957	Portland Gas & Coke Co. from (b) (6)	Block 24, Couch's Addition, Lot 3	NWN0000624
1/12/1961	Northwest Natural Gas Co. from (b) (6), Executrix of the Estate of (b) (6)	Block 24, Couch's Addition; Lot 2 (except the portion in NW 3rd Avenue.) Block 17, Couch's Addition; Lot 8 (East 75.1 feet)	NWN0000888

- East Portland MGP



Block 65—is located between SE 2nd and SE 3rd Avenues, bordered by SE Ankeny and SE Ash Streets. The current address is 110 SE 2nd Avenue, Portland, Oregon 97214. The Property ID/Alt. Account number is R149984/R226504040. The property is currently owned by Michael G. Myers and used by Mike Meyers Produce d/b/a Coastal Brokers, Inc.

East Portland Gas & Light Company operated a small MGP at this property serving the town of East Portland from approximately 1882 until 1892. NWN does not have deeds or other property ownership documents. Ownership information is based on internal memoranda and company history. NWN's understanding of property ownership information is listed in the table below:

DATE BOUGHT	PURCHASER	PROPERTY DESCRIPTION	DOC BATES #
11/23/1892	East Portland Gas Light Co. from (b) (6) and (b) (6)	Block 65, Lots 1, 2, and west 23 feet of lots 7 and 8	NWN0000418
3/4/1922	Alexander McMillian from Portland Gas & Coke Co.	Block 65, Lots 1, 2, and west 23 feet of lots 7 and 8	NWN0000418

Unknown	John Alden Life Insurance Co. from unknown source	Block 65, Lots 1, 2, 5, 6, 7, and 8	NWN0000418
Unknown	Oregon & Washington Railroad Navigation Co. from unknown source	Block 65, Lots 3 and 4	NWN0000418
4/14/1992	Michael Myers from John Alden Life Insurance Co.	Block 65, Lots 1-8, with small portions not included in lots 3 and 4	NWN0000408

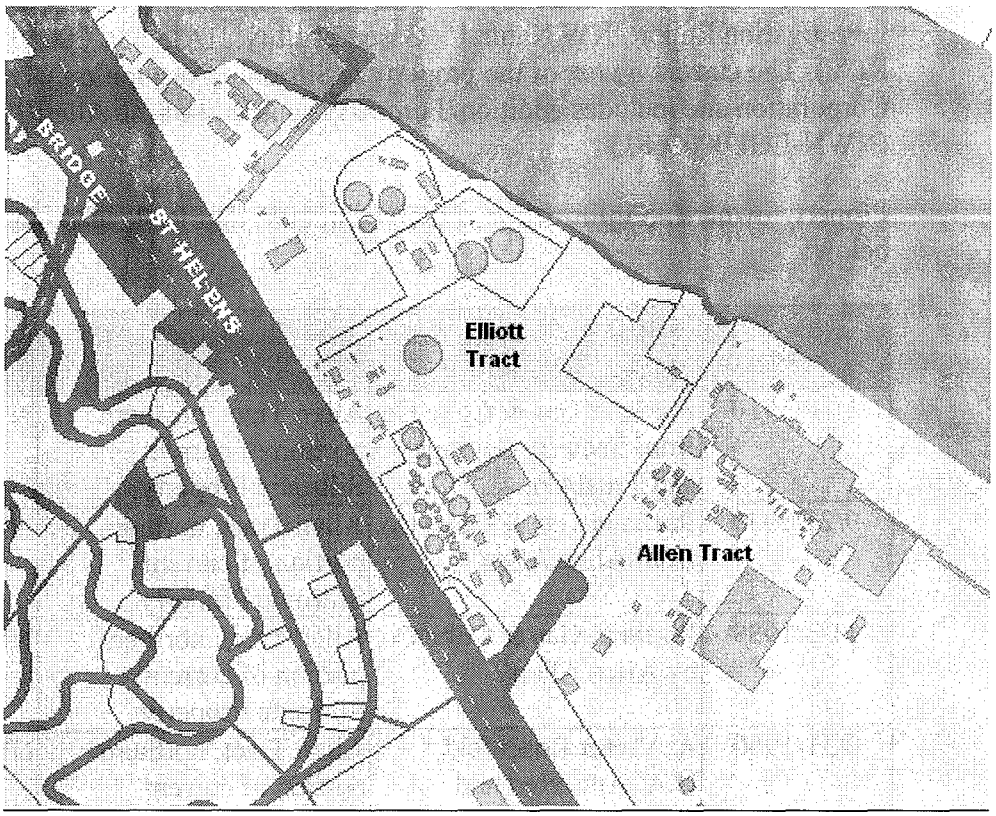
Block 77—is located between SE 3rd Avenue and SE Martin Luther King Jr. Boulevard, bordered by SE Ankeny and E Burnside Streets. The Property ID/Alt. Account numbers are R150033/R226505110, R150034/R226505130, R150035/R226505150. The current address is 5 SE Martin Luther King Boulevard. The current owner is MKB Investment Company. The property is currently commercial retail space utilized by Fishels Contemporary Furniture.

The East Portland Gas & Light Company originally owned lots 3 and 4 of Block 77. (NNG409010, -9032.) A 300,000 cu. ft. holder tank and Governor House were stationed at this property. (NNG409010, -9031.) PGC relinquished its ownership of the property after 1940. (NNG409010.)

Property ownership information contained in NWN's files is listed in the table below:

DATE BOUGHT	PURCHASER	PROPERTY DESCRIPTION	DOC BATES #
00/00/1892	Green and Leonard	E Second Avenue and Ankeny Street. This is a descriptive document and not a Legal Deed	NNG409454
00/00/1892	Portland Gas Co. from H.C. Leonard and Henry Dodge Green	E Second Avenue and Ankeny Street. This is a descriptive document and not a Legal Deed	NNG409454

- GASCO



Elliott Tract—the current address is 7900 NW St. Helens Road, Portland, Oregon 97210. The Property ID/Alt. Account numbers are R324113/R961120420, R324159/R961121120, R324171/R961121300, R324170/R961121290, R324172/R961121310, R502592/R961130540, R324165/R961121230, and R324160/R961121130. PGC constructed an MGP at the property in 1912. From 1913 until 1956, PGC operated an MGP and byproduct manufacturing and refining facilities. In 1956, PGC changed its operations to natural gas distribution. PGC changed its name to Northwest Natural Gas Company in 1958 and is now known as NW Natural. NWN currently owns the property and operates an LNG storage facility at this location.

Allen Tract—the current address is 7200 NW Front Avenue, Portland, Oregon 97210. The Property ID is R324183 and the Alt. Account number is R961130010. The company owned the property from 1939 until 1960.

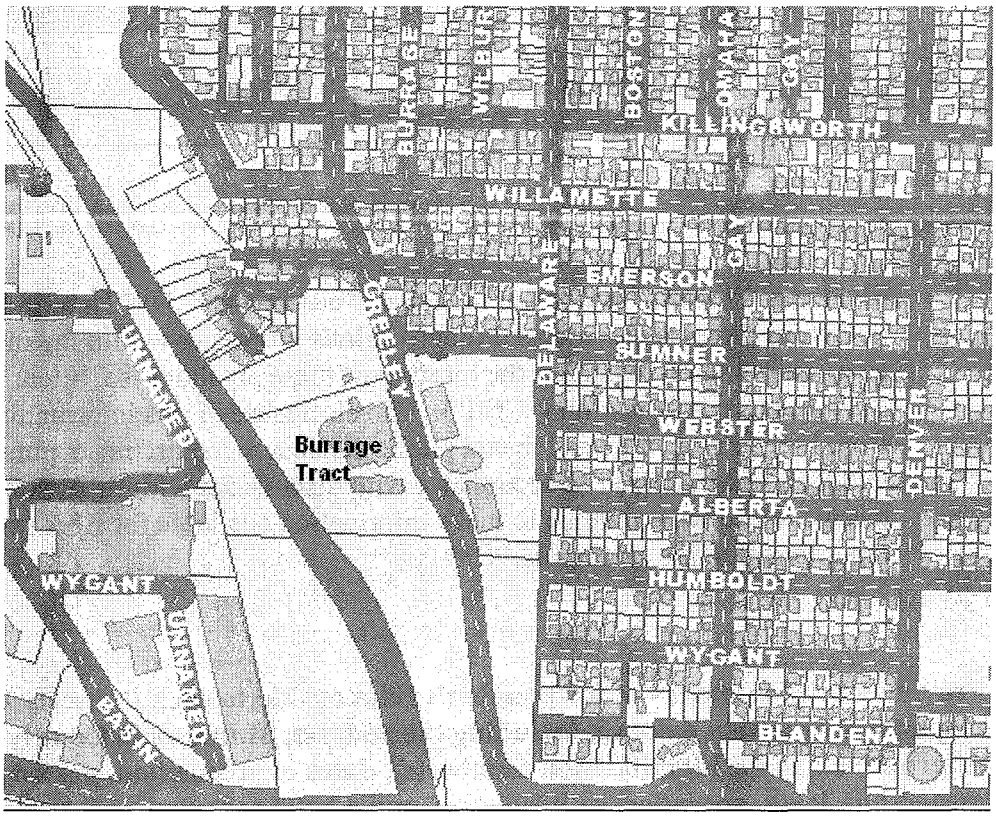
During its ownership of the property, PGC used an approximately 400-foot low-lying area on the edge of the Allen Tract adjacent to the current Gasco property line for waste management activities. The remainder of the Allen Tract was undeveloped. NWN sold the Allen Tract to A. Victor Rosenfeld, H.A. Andersen and Gilbert Schnitzer in 1960. From approximately May 1966 through December 1975, the subsequent owners conducted grading and filling activities at the Allen Tract. Fill material included dredge material (1971 and May 1973 aerial

photographs) and light-colored material that appears to have been imported from off-site (October 1966 and May 1973 aerial photographs). (Remedial Investigation Report, NW Natural—Gasco Facility, HAI, 4/30/2007 ("Gasco RI").) The current owner of the property is Siltronic Corporation. The Siltronic Corporation site includes additional property southeast of the Allen Tract. (NWN-LGL0002681)

Property ownership information contained in NWN's files is listed in the table below:

DATE BOUGHT	PURCHASER	PROPERTY DESCRIPTION	DOC BATES #
1/10/1910	Portland Gas & Coke Co. from Security Savings and Trust Co.	Allen Tract, northern portion of current Siltronic Property	NWN0000248
9/21/1939	Portland Gas & Coke Co. from (b) (6)	Allen Tract, northern portion of current Siltronic Property	NWN0000593
11/3/1939	Portland Gas & Coke Co. by (b) (6)	Allen Tract, northern portion of current Siltronic Property	NWN0000441
8/31/1960	A. Victor Rosenfeld, H.A. Andersen and Gilbert Schnitzer from Northwest Natural Gas Co.	Allen Tract, northern portion of current Siltronic Property	NWN0000435
8/15/1963	Oregon State Highway Commission from NWN	Allen Tract, northern portion of current Siltronic Property	NWN0000291
4/7/1964	A. Victor Rosenfeld from Rosenfeld Investment Co.	Allen Tract, northern portion of current Siltronic Property	NWN0000479
8/17/1978	Wacker Siltronic Corp. from City of Portland	Allen Tract, northern portion of current Siltronic Property	NWN0000485

- Property near Swan Island



NWN has limited information about the ownership of the property near Swan Island. PGC purchased the "Burrage Tract," a nearly 42-acre parcel near Swan Island on approximately January 10, 1910. The property is located adjacent to the Willamette River between Webster and Going Streets in North Portland, and bordered by N Greeley Avenue and the Willamette River. (NNG409010.) The property is across from the former Swan Island Airport.

The property may have been purchased by a NWN predecessor as a possible location for an MGP. Instead, the Company developed the Gasco site. NWN and its predecessors never developed or conducted any operations on the property near Swan Island.

By 1940, the company owned only 24 acres of the "Burrage Tract," including tax lot 3, Sec. 21, Twp. 1 N., Rge 1 E, W. M. (NNG409010.) The property was vacant undeveloped land during the time NW Natural owned it. NW Natural has no information concerning the subsequent use or development of this property.

Property ownership information contained in NWN's files is listed in the table below:

DATE BOUGHT	PURCHASER	PROPERTY DESCRIPTION	DOC BATES #
1/10/1910	Portland Gas & Coke Co. from Security Savings and Trust Co.	Burrage Tract	NWN0000248

- Easements

The term "Property" is defined to include "easements." NW Natural has numerous pipeline easements through various properties within the investigation area. Information regarding the location of these pipelines is Critical Energy Infrastructure Information ("CEII"). The disclosure of this information is exempt from Freedom of Information Act public disclosure requirements pursuant to 5 U.S.C. § 552(b)(7)(F). In accordance with discussions with EPA, NW Natural has made and will continue to make information available for EPA review regarding pipeline easements.

5. **Provide a brief summary of Respondent's relationship to each Property listed in response to Question 4 above, including the address, Multnomah County Alternative Tax lot Identification number(s), dates of acquisition, period of ownership, lease, operation, or affiliation, and a brief overview of Respondent's activities at the Properties identified.**

Response: See Response to Request for Information #4.

6. **Identify any persons who concurrently with you exercises or exercised actual control or who held significant authority to control activities at each Property, including:**

a. partners or joint venturers;

Response:

Pacific Square Associates— Pacific Square Corporation was a wholly-owned subsidiary of NW Natural incorporated in December 12, 1980 for the purpose of creating a joint venture called Pacific Square Associates, with Hayden Island, Inc., a Delaware corporation. Pacific Square Associates was formed on February 26, 1981 and was created to develop the property that is now known as One Pacific Square located at 220 NW Second Ave., Portland, OR 97209. Pacific Square Corporation was dissolved on May 18, 1995. (NWN0000981.)

b. any contractor, subcontractor, or licensor that exercised control over any materials handling, storage, or disposal activity on the Property; (service contractors, remediation contractors, management and operator contractors, licensor providing technical support to licensed activities);

Response:

- Property in Couch's Addition:

As set forth in the table, NWN contracted with outside vendors for removal and disposal of materials:

BLOCK #	DATE	CONTRACTOR INFORMATION	DISPOSAL SITE	BEGDOC#
Block 14	3/30/1995	Burlington Environmental	Burlington Environmental - Treatment, Storage and Disposal Facility	NWN0003776
Block 14	2/3/1998	Enviro-Comp Services	Metro Central Station Recycling and Transfer Services 6161 NW 61st Portland, OR 97210	NWN0003764
Block 14	Unknown	Unknown	Cameron-Yakima Inc. 1414 S First St. Yakima, WA 98901	NWN0004772
Block 16	5/1/1992	Spencer Inc.	Marine Shale Processors HWY 90 East Morgan City, LA 70380	NWN0004686
Block 16	5/15/1992	Spencer Inc.	Marine Shale Processors HWY 90 East Morgan City, LA 70380	NWN0004696
Block 16	3/12/1993	Spencer Inc.	Marine Shale Processors HWY 90 East Morgan City, LA 70380	NWN0004667
Block 16	3/31/1993	Spencer Inc.	Marine Shale Processors HWY 90 East Morgan City, LA 70380	NWN0004677
Block 16	7/22/1993	Spencer Inc.	Sol Pro 1825 Alexander Rd. Tacoma, WA 98421	NWN0004660
Block 16	11/11/1994	Spencer Inc.	Northwest Enviroservice Inc. 1500 Airport Way South Seattle, WA 98134	NWN0004632
Block 16	4/29/1996	Spencer Inc.	Marine Shale Processors HWY 90 East Morgan City, LA 70380	NWN0004698
Block 16	00/00/0000	Spencer Inc.	Sol Pro 1825 Alexander Rd. Tacoma, WA 98421	NWN0004714

Block 16	10/31/0000	Spencer Inc.	Marine Shale Processors HWY 90 East Morgan City, LA 70380	NWN0004679
Block 16	11/5/1990	Spencer Inc.	Sol Pro 1825 Alexander Rd. Tacoma, WA 98421	NWN0004709
Block 16	11/5/1990	Unknown	Sol Pro 1825 Alexander Rd. Tacoma, WA 98421	NWN0004707
Block 16	4/13/1992	Unknown	Sol Pro 1825 Alexander Road Tacoma, WA 98421	NWN0004680
Block 16	4/29/1992	Unknown	Marine Shale Processors, Inc. Highway 90 East Morgan City, LA 70380	NWN0004684
Block 16	4/29/1992	Unknown	Marine Shale Processors Inc. Highway 90 East Morgan City, LA 70380	NWN0004698
Block 16	5/13/1992	Unknown	Sol Pro 1825 Alexander Rd. Tacoma, WA 98421	NWN0004680
Block 16	12/20/1994	Northwest Enviroservice Inc. 1500 Airport Way South Seattle, WA 98134	Unknown	NWN0004634
Block 16	Unknown	Unknown	Marine Shale Processors HWY 90 East Morgan City, LA 70380	NWN0004679
Block 16	Unknown	Unknown	Marine Shale Processors, Inc. Highway 90 East Morgan City, LA 70380	NWN0004689
Block 16	Unknown	Spencer Inc.	Marine Shale Processors, Inc. Highway 90 East Morgan City, LA 70380	NWN0004691

- East side MGP: None.
- Property near Swan Island: None.
- GASCO:

CONTRACTOR INFORMATION	DISPOSAL SITE	NATURE OF WASTE	BEGDOC#
E.S. Ritter Company, Inc. 4952 Portland Road NE Salem, OR 97303	Unknown	Steel and Concrete Structures, Tanks, and Piping	NNG411136
Lincoln Cristi Inc. 600 SE Maritime Ave. #330 Vancouver, WA 98661	Hillsboro Landfill 3205 SE Minter Bridge Rd. Hillsboro, OR 97123	Boiler Insulation	NWN0012350
Lincoln Cristi, Inc., 600 SE Maritime Ave, Vancouver, WA 98123	Hillsboro Landfill 3205 SE Minter Bridge Rd. Hillsboro, OR 97123	Boiler Insulation - Asbestos	NWN0012350
MSP	Unknown	Spent Activated Carbon, Water	NWN0004157
Burlington Environmental	Philip Environmental 1701 E. Alexander Ave. Tacoma, WA 98421	Flammable Liquids, Hazardous Liquids - Benzene, Gasoline, Acetone	NWN0003681
Burlington Environmental	Unknown	Material Not Regulated by DOT, Potassium Nitrate, Chlorate and Borate Mixtures, Paint Waste	NWN0003629
Environmental Quality Company	Unknown	Soil with Petroleum Distillates	NWN0003652
Eltex Environmental	Michigan Disposal Waste Treatment Plant 49350 N. I-94 Service Drive Belleville, MI 48111	RQ, Environmentally Hazardous Substance, Solid, N.O.S. (Benzene, Soil)	NWN0003676
Unknown	Michigan Disposal Waste Treatment Plant 49350 N. I-94 Service Drive Belleville, MI 48111	RQ, Environmentally Hazardous Substance, Solid, N.O.S. (Benzene, Soil)	NWN0003648
Unknown	TPST Soil Recyclers of Oregon 9333 N. Harborgate Street Portland, OR 97203	Petroleum Contaminated Soil	NWN0004265
Unknown	TPST Soil Recyclers of Oregon 9333 N. Harborgate Street Portland, OR 97203	Unknown	NWN0003610
Unknown	TPST Soil Recyclers of Oregon 9333 N. Harborgate Street Portland, OR 97203	Unknown	NWN0003617
Unknown	TPST Soil Recyclers of Oregon 9333 N. Harborgate Street Portland, OR 97203	Unknown	NWN0003617

Unknown	Michigan Disposal Waste Treatment Plant 49350 N. I-94 Service Drive Belleville, MI 48111	RQ, Environmentally Hazardous Substance, Solid, N.O.S. (Benzene, Soil)	NWN0003578
Eltex Chemical	Michigan Disposal Waste Treatment Plant 49350 N. I-94 Service Dr. Belleville, MI 48111	Soil Contaminated With Benzene	NWN0003578
Unknown	TPST Soil Recyclers of Oregon 9333 N. Harborgate Street Portland, OR 97203	Petroleum Contaminated Soil	NWN0004265
Unknown	Burlington Environmental Inc. 734 South Lucile Street Seattle, WA 98108	Hazardous Waste, Liquid, N.O.S. (Benzene)	NWN0003578
Hahn and Associates 434 NW Sixth Ave., Ste. 203 Portland, OR 97209	TPST Soil Recyclers 9333 N Harborgate St. Portland, OR 97203	Non-Hazardous Soil	NWN0003573
Environmental Quality Company	Michigan Disposal Waste Treatment Plant 49350 N. I-94 Service Dr. Belleville, MI 48111	Solid Hazardous Waste - Benzene	NWN0003563
Environmental Quality Company	Michigan Disposal Waste Treatment Plant 49350 N. I-94 Service Dr. Belleville, MI 48111	Dirt, Gas	NWN0003569
Philip Environmental	Burlington Environmental - Georgetown Facility	Diesel Fuel Tank Waste	NWN0003592
ADT Environmental Solutions	Unknown	Unknown	NWN0006425
Advanced Disposal Technologies, Inc. 1210 NE Oregon Street Sherwood, OR 97140	Class C Landfill	Water and PPE	NWN0006422
Hahn and Associates 434 NW Sixth Ave., Ste. 203 Portland, OR 97209	TPST Soil Recyclers of Oregon 9333 N. Harborgate Street Portland, OR 97203	Unknown	NWN0004753
Hahn and Associates 434 NW Sixth Ave., Ste. 203 Portland, OR 97209	TPST Soil Recyclers of Oregon 9333 N. Harborgate Street Portland, OR 97203	Unknown	NWN0004754
Hahn and Associates 434 NW Sixth Ave., Ste. 203 Portland, OR 97209	TPST Soil Recyclers of Oregon 9333 N. Harborgate Street Portland, OR 97203	Contaminated Soil	NWN-LGL0000550

Hahn and Associates 434 NW Sixth Ave., Ste. 203 Portland, OR 97209	TPST Soil Recyclers of Oregon 9333 N. Harborgate Street Portland, OR 97203	Contaminated Soil	NWN-LGL0000550
Hahn and Associates 434 NW Sixth Ave., Ste. 203 Portland, OR 97209	TPST Soil Recyclers of Oregon 9333 N. Harborgate Street Portland, OR 97203	Contaminated Soil	NWN-LGL0000550
TPS Technologies	Portland Soil Recycling Facility	Non-Hazardous Contaminated Soil	NWN0003547
Unknown	Burlington Environmental Inc. 20245 77th Ave. South Kent, WA 98032	Unknown	NWN0003761
Hahn and Associates 434 NW Sixth Ave., Ste. 203 Portland, OR 97209	TPST Soil Recyclers of Oregon 9333 N. Harborgate Street Portland, OR 97203	Unknown	NWN0005285
Hahn and Associates 434 NW Sixth Ave., Ste. 203 Portland, OR 97209	TPST Soil Recyclers of Oregon 9333 N. Harborgate Street Portland, OR 97203	Unknown	NWN0004743
Hahn and Associates 434 NW Sixth Ave., Ste. 203 Portland, OR 97209	Stayton Environmental	Contaminated Soil	NWN0006168
West Coast Marine Cleaning, Inc. 455 C Street Washougal, WA 98671	Marion County Soil Recycling Facility	Soil	NWN-LGL0002794
Hahn and Associates 434 NW Sixth Ave., Ste. 203 Portland, OR 97209	Spencer Environmental 6400 SE 101st Ave. Portland, OR 97266	Waste Oil	NWN-LGL0001443
Waste Management	Chemical Waste Management, Arlington, OR 97812	Multilayer, Silt and Sand, Organic Contaminants	NWN0012125
Chemical Waste Management 17629 Cedar Springs Lane Arlington, OR 97812	Unknown	Contaminated Sediment	NWN0012125
Waste Management	C Landfill Arlington, OR 97812	Dredged Sediment	NWN-LGL0003965
CWMNW, Inc.	CWMNW, Inc. 17629 Cedar Springs Lane, Arlington, OR 97812	Contaminated Sediment, Solid Waste, Other Regulated Substances	NWN0012144
Sevenson Environmental Services, Inc. 2749 Lockport Rd. Niagara Falls, NY 14305	Unknown	Unknown	NWN0011889; Amendment NWN0011951

Waste Management	RCRA Subtitle D Non-Hazardous Waste Disposal Facility Hillsboro, OR 97123	Soil Cuttings	NWN-LGL005830
Unknown	Cameron-Yakima, Inc. 1414 S. First St. Yakima, WA 98901	Hazardous Waste Solid, N.O.S.	NWN0008528
Unknown	Michigan Disposal Waste Treatment Plant 49350 N. I-94 Service Drive Belleville, MI 48111	RQ, Environmentally Hazardous Substance, Solid, N.O.S. (Benzene, Soil)	NWN0003573
Northwestern Carbon	Red Bluff Facility	GAC	NWN0007039, NWN0007063
Unknown	Waste Management	Contaminated sediment	NWN-LGL0003551
Unknown	Unknown	RQ, Waste Combustible Liquid, N.O.S. (Xylene, Toluene)	NWN0004725
D.M. Recycling	Cameron-Yakima Inc., 1414 S First St., Yakima, WA 98901	Solid Hazardous Waste - Benzene	NWN0004771
Resource Recovery	Philip Environmental 1701 E Alexander Ave. Tacoma, WA 98421	Non-RCRA Waste Liquid	NWN0003768
Unknown	Sanifill Solutions 3205 SE Minter Bridge Road Hillsboro, OR 97123	Asbestos	NWN0012377
The Environmental Quality Company 49350 N. I-94 Service Drive Belleville, MI 48111	Michigan Disposal Waste Treatment Plant 49350 N. I-94 Service Drive Belleville, MI 48111	RQ Hazardous Waste Solid N.O.S. (Benzene)	NNG403499
Unknown	Michigan Disposal Waste Treatment Plant 49350 N. I-94 Service Drive Belleville, MI 48111	Benzene Soil	NWN0004759
Unknown	Environmental Products NW	Spent Granular Activated Carbon	NWN0006489
Burlington Environmental	Kent, WA Facility	Solid	NWN0003754
Unknown	Cameron-Yakima, Inc. 1414 S. First St. Yakima, WA 98901	Hazardous Waste Solid, N.O.S.	NWN0008496

- Easement:

SITE	CONTRACTOR INFORMATION	DISPOSAL SITE	NATURE OF WASTE	BEGDOC#
Tanner Creek	TPS Technologies	TPS Soil Recycling Facility	Non-Hazardous Contaminated Soil	NWN0013071

Tanner Creek	NW Natural Gas 1500 NW Naito Parkway Portland, OR 97231	TPST Soil Recyclers of Oregon 9333 N. Harborgate Street Portland, OR 97203	Non-Hazardous Contaminated Soil	NWN0013292
Tanner Creek	NW Natural Gas 1500 NW Naito Parkway Portland, OR 97231	TPST Soil Recyclers of Oregon 9333 N. Harborgate Street Portland, OR 97203	Non-Hazardous Contaminated Soil	NWN0013291
Tanner Creek	NW Natural Gas 1500 NW Naito Parkway Portland, OR 97231	TPST Soil Recyclers of Oregon 9333 N. Harborgate Street Portland, OR 97203	Non-Hazardous Contaminated Soil	NWN0013290

c. any person subleasing land, equipment or space on the Property;

Response:

NWN has limited information regarding historical subleases at the properties. NWN assumes that EPA's request for information on subleases is meant to include information on leases.

- Property in Couch's Addition:

  Block 16— See Response to Request for Information #4.

- East side MGP: None.

- Property near Swan Island: None.

- GASCO: Portions of the Gasco facility have been leased to:

  - Koppers Company, Inc. (1965 – 1988).

    - Koppers Company, Inc. ("Beazer") leased property from NWN beginning in 1965. (NWN 0002205, NNG 409351.) Koppers Company was purchased by Beazer PLC, a predecessor of Beazer East Inc., in 1988. (NWN0002196.) Beazer operated a coal tar distillation plant from 1966 through 1973, producing chemical oil, creosote, and pitch from coal tar distillates. (NWN0002184.) From 1974 until 1977, Beazer operated the plant for manufacturing experimental batches of electrode pitch, a product consisting of coal tar and petroleum residuals. (Gasco RI, p. 21.) From 1977 until 1988, Beazer operated a bulk transfer facility for creosote, coal tar and coal tar pitch from its leasehold. (Id.)

- Koppers Industries, Inc. (1988 – present).

  - Koppers Industries, Inc. currently leases property in the southwest portion of the Elliott Tract along NW St. Helens Road, 7540 NW St. Helens Road. Koppers Industries, LLC took over the property lease from Beazer in 1988. (NWN0002196.)

    Koppers Industries, Inc. has continued Beazer's bulk transfer and distribution operations. (Id.; Gasco RI, p. 22.)

- Shell Company of California.

  - The Shell Company of California executed a lease with PGC on February 11, 1915, for 5.2 acres of land along the waterfront of the Willamette River at the SE corner of the Gasco works property (the Elliott Tract) and an easement on a 50-foot strip of land extending to Linnton Road. (HAHN00402.) The term of the lease was February 11, 1915 until February 10, 1930. (Id.) Shell Oil Company built a dock and buildings on the river bank at the leasehold and constructed a 55,000 Bbl oil storage tank. (Id.)

    On October 31, 1929, the Shell Company terminated the lease. (HAHN00402.) By 1957 the facility was apparently abandoned, and the buildings destroyed by 1973. (NNG400365, -0486.) Remnants of the Shell Dock and a building foundation remain at the edge of the Elliott Tract today.

- Pacific Northern Oil Corp.

  - Pacific Northern Oil Corp. ("PNO") leased a tank farm in the northern portion of the Gasco property, including use of the dock, from 1965 until 1999. The facility consists of five above ground storage tanks with a capacity of approximately 260,000 barrels. (NWN0014195; Gasco RI, p. 13.) Some of these tanks were originally utilized by PGC in its gasification operations, and were reconditioned for lease to PNO. (HAHN00272.)

    PNO operated a marine bulk oil terminal at the site. (NWN0014195; Gasco RI, p. 13.) The terminal received, stored, blended, and shipped marine fuels and

lubricants, utilizing both truck and barge for transport. (Gasco RI, p. 13.)

- CTC Analytical Services.
  - CTC Analytical Services subleased a portion of the PNO leasehold from PNO. NWN has no other information related to the leasehold or operations of CTC Analytical.
- Fuel and Marine Marketing ("FAMM"); Pacific Terminal Services ("PacTerm").
  - In 1999, FAMM entered into a lease agreement with NWN for the tank farm and use of the dock. Pacific Terminal Services, under an agreement with FAMM, has conducted a similar operation to that conducted by PNO. (Id.) Last year, PacTerm signed the lease renewal. FAMM is no longer the signatory to the lease.

- Easements: None.

d. utilities, pipelines, railroads and any other person with activities and/or easements regarding the Property;

Response:

- Property in Couch's Addition: None.
- East side MGP: None.
- Property near Swan Island: None.
- GASCO: Olympic Pipeline has a pipeline and utilities easement running northwest through the current Siltronic property to Koppers' lease area. (NNG 400496.) Burlington Northern/Santa Fe Railroad has a right of way on the southeast and southwest portions of the Gasco property. (Wacker Siltronic: Request for Performance of Remedial Investigation and Feasibility Study, 10/19/1999, NWN-LGL 006306.) The location of railroad lines and the Olympic Pipeline are illustrated in Figures 4-6, and in Appendix A, of the Gasco RI.
- Easement: None.

e. major financiers and lenders;

Response:

Northwest Natural Gas Company entered into certain financing arrangements and guarantees with Pacific Square Association in connection with the development, sale and lease of the property known as One Pacific Square located at 220 N.W. Second Ave, Portland, OR 97209 (Block 14). Otherwise, we are not aware of any financiers or lenders related to the subject property who exercise or exercised actual control of or, who held significant authority to control activities at the subject property.

f. any person who exercised actual control over any activities or operations on the Property;

Response:

- Property in Couch's Addition:

  Block 16— See Response to Request for Information #4.

- East side MGP: None.

- Property near Swan Island: None.

- GASCO:

  - The Elliott Tract:

    - Koppers, Inc. and its predecessors

      - See Response to Request for Information #6.c., above.

    - Shell Oil

      - See Response to Request for Information #6.c., above.

    - Fuel and Marine Marketing ("FAMM") Pacific Northern Oil Corp.; Pacific Terminal Services ("PacTerm")

      - See Response to Request for Information #6.c., above.

- Easements: None.

g. any person who held significant authority to control any activities or operations on the Property;

Response:

NWN objects to this question as duplicative. See Response to Request for Information #6.f.

h. any person who had a significant presence or who conducted significant activities at the Property; and

Response:

NWN objects to this question as duplicative. See Response to Request for Information #6.f.

i. government entities that had proprietary (as opposed to regulatory) interest or involvement with regard to the activity on the Property.

Response:

- Property in Couch's Addition: On information and belief, NWN understands that the City of Portland has installed, maintained or operated sewer or stormwater systems at these properties.

  Block 5–After operations at the manufactured gas plant ceased in approximately 1912, the City of Portland and State of Oregon built a seawall along the bank of the Willamette River. (S-R00079.) The seawall was built between approximately 1928 and 1930. (Id.) The City and State placed fill behind the wall as it was constructed. (S-R00079.)

  Block 6— On information and belief, after operations at the manufactured gas plant ceased in approximately 1912, the City of Portland, Multnomah County or State of Oregon constructed roads and an access ramp to the Steel Bridge on the property.

  Block 16— See Response to Request for Information #4.

- East side MGP: None.

- The Property near Swan Island: None.

- GASCO: During preparations for the Gasco site, the Port of Portland pumped approximately 227,000 cubic yards of fill material onto the property. (HAHN00673, -0675; Gasco RI, Appendix A.) The City of Portland, Portland Development Commission held title to the Allen tract for a period of time prior to 1978. On information and belief, NWN understands that the City of Portland has installed, maintained or operated sewer or stormwater systems at the property. (Gasco RI, Figures 4 – 6.)

- Easements: None.

7. Identify and describe any legal or equitable interest that you now have, or previously had in each Property. Include information regarding the nature of such

interest; when, how, and from whom such interest was obtained; and when, how, and to whom such interest was conveyed, if applicable. In addition, submit copies of all instruments evidencing the acquisition or conveyance of such interest (e.g., deeds, leases, purchase and sale agreements, partnership agreements, etc.).

Response:

- Property in Couch's Addition: See Responses to Requests for Information #4 and 6.a.
- East side MGP: See Response to Request for Information #4.
- Property near Swan Island: See Response to Request for Information #4.
- GASCO: See Response to Request for Information #4.
- Easements: See Response to Request for Information #4.

8. **If you are the current owner and/or current operator, did you acquire or operate the Property or any portion of the Property after the disposal or placement of hazardous substances, waste, or materials on, or at the Property? Describe all of the facts on which you base the Response to this question.**

Response:

- Property in Couch's Addition: N/A
- East side MGP: N/A
- Property near Swan Island: N/A
- GASCO:
    - Elliot Tract: The Port of Portland placed dredge material as fill at the property in approximately 1912. (HAHN00673, -0675.) NWN has no information concerning the source of the fill material.
    - Allen Tract: N/A
- Easements: None.

9. **At the time you acquired or operated the Property, did you know or have reason to know that any hazardous substance, waste, or material was disposed of on, or at the Property? Describe all investigations of the Property you undertook prior to**

acquiring the Property and all of the facts on which you base the Response to this question.

Response:

NWN and its predecessors acquired all properties prior to the enactment of CERCLA and other environmental laws or standards, including due diligence standards or regulations defining hazardous substances. NWN is unaware of investigations undertaken prior to purchase.

10. **Identify all prior owners that you are aware of for each Property identified in Response to Question 4 above. For each prior owner, further identify if known and provide copies of any documents you may have regarding:**

a. **the dates of ownership;**

Response: See Responses to Requests for Information #4 and 75.c.

b. **all evidence showing that they controlled access to the Property;**

Response: See Response to Request for Information #4.

c. **all evidence that a hazardous substance, pollutant, or contaminant, was released or threatened to be released at the Property during the period that they owned the Property;**

Response:

See Responses to Requests for Information #16, 17, 63, 64, 65, 67, 72, and 73.

d. **any information or documents you may have regarding but not limited to the following entities:**

i. **CTC Analytical Services, Inc.;**

Response: GASCO: See Response to Request for Information #6.c.

ii. **Pacific Northern Oil Company;**

Response: GASCO: See Response to Request for Information #6.c.

iii. **Portland Gas and Coke Company; and**

Response:

PGC is a predecessor to NWN. Documents related to the operations of PGC at the property will be produced in response to requests 4, 16, 17, 63, 64, 65, 67, 72, and 73.

e. provide all documentation regarding, but not limited to the following operations by Portland Gas and Coke Company;

i. any discharge of wastewater from tar stills and unusable petroleum byproducts into the Willamette River;

Response:

- Property in Couch's Addition: Documents attached. The manufactured gas operations took place adjacent to the wharf, with some covered storage areas located at the wharf on the Willamette River. (NNG409098; NNG409564, -565.) Reports from the early 1900s, indicate the discharge of coal tar and other wastes into the Willamette River from the Portland Gas Manufacturing plant. (NWN0015723.)

- East side MGP: None.

- Property near Swan Island: None.

- GASCO:

  Documents attached.

  The plant generated waste process water containing petroleum emulsions. Over time, with increasing by-product capture and utilization, the volumes of tars and oil in the process wastewater would have diminished. Between 1913 and 1941, process water was discharged to or placed within low lying areas of the site to allow solids to settle out. By 1930, a separating sump, baffles and skimmers were used to remove traces of tar and oil from the process water. In approximately 1939, PGC installed a thickener overflow tank to reduce the potential for oil to discharge to the Willamette River. (HAHN00327.) During plant expansions in the 1930s and 1940s, two wastewater settling ponds were constructed on the southeastern portion of the Gasco property. The ponds began operation in approximately 1941. (Gasco RI, p. 18.) A separating sump was used to capture lighter fractions floating on the surface of the ponds. (Id.) In 1949 and 1950, PGC began pumping tar emulsion from primary tar boxes to an emulsion tank, with overflow directed to secondary tar boxes. (NNG408972.) In approximately 1950, PGC worked under a plan approved by the Oregon Sanitary Authority to modify its settling ponds to increase the flow area, thereby extending the resident time for the settling to

occur. In addition, PGC constructed an additional dike to divide the settling ponds and installed two skimmers to collect and convey oils atop the water to an oil separator box for processing. (HAHN00268, HAHN00373.) In 1952, additional modifications were made to the settling ponds to reduce erosion of the dikes. (HAHN00366.) Flooding impacted the settling ponds in 1948 and 1965, which probably resulted in the loss of material to the river. (Gasco RI, Appendix A; HAHN00736.)

ii. any evidence that Portland Gas and Coke Company stored lampblack and spent iron oxide waste in onsite waste piles;

Response: .

- Property in Couch's Addition:

  Documents attached.

  Lampblack, a by-product of the oil gasification process, would have been present at the Portland Gas Manufacturing site for only about the last seven years of plant operations, approximately 1906 until 1913. (NNG409098.) PGC documents indicate that lampblack was at first discarded and then stored in bins before being fed back into the boilers. (NNG409098; NNG409712, -9767.) Lampblack was removed through lampblack separators, where process water containing lampblack was run through the separators. (NNG409098, -9146.) The lampblack would fall down to the bottom bin. When a sufficient quantity had accumulated, the separator would be temporarily shut off and the lampblack was shoveled out of the separator through a sliding door into troughs, which were carried by conveyor to bins in the boiler room. (Id.) Apparently, excess lampblack was stored in the former coal storage shed. (NNG411777.) In approximately 1911, PGC began producing lampblack briquettes. (NNG409712, 767-768; NNG409712, -9767.)

- East side MGP: None.

- Property near Swan Island: None.

- GASCO:

  Documents attached.

  Northern Spent Oxide Pile— PGC stored spent oxide near the northern corner of the Gasco property, north of the former gas purification reactor area and northwest of the oxide building. The spent oxide pile was comprised, primarily, of wood shavings and

was a residue from gas purification. (Gasco RI, p. 17 and figure 8.) Spent gas purification materials accumulated at this location from 1913 until 1956. (Id. at p. 17.) When PGC switched to natural gas distribution in 1956, the spent oxide storage area is estimated to have contained 80,000 to 94,000 cubic yards of material. (NNG411695, -1701; NNG409172, -9177.) The stockpile was impacted by flooding at the site in 1948 and 1965. (Gasco RI, Appendix A.) The stockpile was removed from the site in approximately 1973 and was disposed of at an off-site sanitary landfill. (Id.; NNG411136; NNG409172.) Some company reports suggest that a portion of spent oxide remained onsite and was, ultimately, mixed along with imported quarry rock and tar material from the tar ponds and used to fill the effluent tar pond area at the eastern corner of the property. (HAHN00272; Gasco RI, p. 17.) A map and aerial photographs showing the northern spent oxide pile is included in Figure 6 and Appendix A to the Gasco RI.

Southern Spent Oxide Pile— Aerial photographs illustrate a stockpile of material located south of the common Siltronic/Gasco property line near the western corner of the Siltronic property. Aerial photographs indicate that the stockpile was present at this location between 1952 and 1966. (Gasco RI, p. 21 & Appendix A.) The material in the storage area is identified in aerial photographs as spent oxide. (Gasco RI, Appendix A.) NWN records do not indicate the nature of material stored in this stockpile. NWN sold this property in 1960 and the material remained onsite until filling operations by the property owners and the Port of Portland during the late-1960s and 1970s. (Id.) The final disposition of this material is unknown. (Gasco RI, p.21.) A map and aerial photographs showing the southern spent oxide pile is included in Figure 6 and Appendix A to the Gasco RI.

Lampblack Storage Area— A lampblack briquette manufacturing operation was constructed at the same time as the gas works. (Id., 10-13; NNG409464, -469.) Lampblack derived from gas manufacturing operations at the GASCO plant was, from the beginning, made into briquettes and sold. (HAHN00137, p.10.) PGC placed residual lampblack in an area south of the current southernmost PacTerm fuel storage tank area (east of the current LNG tank containment area). (HAHN00380, p. 2; NNG410365, - 0374; NNG400365, -0471; HAHN00380, -0381.) This area was used for lampblack storage from 1913 until 1956. Residue lampblack storage areas appear to have been impacted by flooding of the site in 1948 and 1965. (Gasco RI, Appendix A.) A map and aerial photographs showing the lampblack storage area is included in Figure 6 and Appendix A to the Gasco RI.

iii. **any evidence that Portland Gas and Coke Company discharged all products from the gasification operations between 1913 and 1925 directly to the Willamette River;**

Response: None.

iv. **any evidence that Portland Gas and Coke Company separated tars from the wastewater in settling ponds after 1925; and**

Response:

- Property in Couch's Addition: None
- East side MGP: None.
- Property near Swan Island: None.
- GASCO:

  Documents attached.

  Between 1913 and 1941, process water was discharged to or placed within low lying areas of the site to allow solids to settle out. By 1930, a separating sump, baffles and skimmers were used to remove traces of tar and oil from the process water. In approximately 1939, PGC installed a thickener overflow tank to reduce the potential for oil to discharge to the Willamette River. (NNG411667-89.) During plant expansions in the 1930s and 1940s, two process water settling ponds (one large, approximately 2.5-acre pond and one small approximate 0.5-acre elongated pond) were constructed near the eastern corner of the current Gasco property and came online in 1941. Prior to that time, waste materials that had not been developed into marketable by-products (wastewater with petroleum emulsions containing some amounts of lampblack and tars) were discharged to, or placed within, lowland areas of the site with drainage features leading from the production area to the Willamette river. (Gasco RI, p. 17.)

  The process water settling ponds received wastewater from tar boxes and lampblack dryers (tar, lampblack, oil, and oil-water emulsions), and were meant to reduce the discharge of effluent to the river by allowing heavy components of the effluent to settle out. A separating sump was used to capture lighter fractions floating on the surface. As shown on aerial photographs (Gasco RI, Appendix A), the smaller settling pond straddled the border of the current Siltronic property (Figure 6). As observed in 1948 and 1965 aerial photographs, the former tar settling pond area was

susceptible to flood inundation and periodic submergence beneath the river, which probably caused loss of materials to the river.

In approximately 1950, PGC, working under a plan approved by the Oregon State Sanitary Authority, modified its settling ponds to increase the flow area, which extended the resident time for settlement of heavy components to occur, constructing an additional dike to divide the settling ponds, and installing two skimmers to collect and convey oils atop the water to an oil separator box for processing. (HAHN00268; HAHN00373.) The larger of the settling ponds was designed to overflow via a weir into the western end of the narrower pond located on the boundary of the Allen Tract and Elliott Tract (the current NW Natural/Siltronic property boundary). (Gasco RI, p. 18, Figure 6, and Appendix A.) This pond, in turn, was designed to overflow via a weir on the eastern end into a channel that directed discharge into the Willamette River at a point near the current NW Natural/Siltronic property line. (Id.)

The outlet from this pond to the Willamette River was apparently blocked in 1951 and overflows from these ponds were instead directed to the approximate 400-foot wide former lowland area of the Siltronic property adjacent to the current property boundary. (Id.)

Records indicate the top of the berms surrounding the settling ponds ranged in elevation from approximately 21 to 26 feet msl (approximately 5 to 15 feet below the current ground surface).

PGC records further indicate that to maintain capacity within the settling ponds and to minimize discharges into the river, the ponds were periodically cleaned-out. (Id.) Settling pond clean-out reportedly involved use of drag lines and trucks to place the "soft/tarry substance" removed from the ponds on the ground surface immediately south of the ponds (i.e., the former adjacent low area at Siltronic). (HAHN00366.)

In 1973, filling and reconfiguration of the large settling pond located on the Gasco property began (May 1973 aerial photograph). Company records indicate this pond contained an estimated 30,000 cubic yards of tar, which was mixed with quarry rock and spent iron oxide material from the northern portion of the property in a 3 to 1 blend (3 cubic yards rock/spent oxide/soil to 1 cubic yard tar). Subsurface boring log data indicates that fill used to form the embankment between the river and the settling ponds did not contain tar, while the area immediately inland of the embankment consists of 25 to 30 feet of fill mixed with tar. A map

and aerial photographs showing the settling ponds is included in Figure 6 and Appendix A to the Gasco RI. (See also Response to Request 16.)

v. **any evidence that Koppers Company dumped creosote and pitch from the coal tar distillation plant, into an on-site disposal pit.**

Response: Documents attached.

11. **Identify all current or prior operators of the Property, including lessors, you are aware of for each Property identified in response to Question 4 above. For each such operator, further identify if known and provide copies of any documents you may have regarding:**

a. the dates of operation;

Response: See Responses to Requests for Information #4 and 6.c.

b. the nature of prior operations at the Property;

Response: See Responses to Requests for Information #4 and 6.c.

c. all evidence that they controlled access to the Property;

Response: See Responses to Requests for Information #4 and 6.c.

d. all evidence that a hazardous substance, pollutant, or contaminant was released or threatened to be released at or from the Property during the period that they were operating the Property;

Response:

See Responses to Requests for Information #63, 64, 65, 67, 72, and 73.

e. any information or documents you may have regarding but not limited to the following entities:

i. Beazer East, Inc.;

Response:

See Responses to Requests for Information #6.c., 16.h.iv., 22.f., 63, and 72.

ii. Koppers Company;

Response:

See Responses to Requests for Information #6.c., 16.h.iv., 22.f., 63, and 72.

iii. **Portland Gas and Coke Company;**

Response:

PGC is a predecessor to NWN. Documents related to the operations of PGC at the property will be produced in response to Section 104(e) request 10.a.-c., 63, 64, 65, 67, 72, and 73.

iv. **Pacific Northern Oil Corporation; and**

Response:

See Responses to Requests for Information #6.c., 63, 65, 67, 68, and 72.

v. **CTC Analytical Services, Inc.**

Response: See Responses to Requests for Information #6.c.

12. **If not included in response to any of the previous questions, please describe the purpose and duration of each aquatic lands lease Respondent or the operator of Respondent's Property(ies) ever obtained from the State of Oregon and provide a copy of each application for and aquatic lands lease obtained.**

Response:

- Property in Couch's Addition: Certain manufacturing operations occurred at Block 5 on a wharf over the Willamette River between 1860 and 1913. NWN has no information indicating that the State of Oregon issued a lease to NWN or its predecessors for submerged or submersible lands at this location.

- East side MGP: None.

- Property near Swan Island: None.

- GASCO: NWN has no information indicating that the State of Oregon has leased submerged or submersible lands to NWN or other owners or operators at this location. NWN understands that the State of Oregon Department of State Lands ("DSL") is providing information from its files, which may include information regarding submerged or submersible land leases to NWN.

  On June 29, 2004, DSL signed a Federal Superfund Access Agreement granting NWN authority to conduct remedial investigation and removal of approximately 15,300 cubic yards of tar and sediments within the Willamette River adjacent to

the Gasco site and maintain temporary and pilot caps at the site. (NWN-LGL0003195; NWN-LGL0003013; RI, p. 61.) The Federal Superfund Access Agreement has a term of fifteen years from the effective date. (NWN-LGL0003195.)

DSL granted NWN a Temporary Use Permit in October of 2006 for NWN to conduct a remedial investigation/feasibility study in connection with source control evaluations under NWN's voluntary agreement with DEQ. (NWN0007455.) The Temporary Use Permit expires two years from the effective date.

- Easements: None.

Section 3.0 Description of Each Property

13. Provide the following information about each Property identified in response to Question 4:

a. property boundaries, including a written legal description;

- Property in Couch's Addition: See Response to Request for Information #4. NWN does not have other written legal descriptions of the properties in Couch's Addition.

- East side MGP: See Response to Request for Information #4. NWN does not have other written legal descriptions of the property.

- Property near Swan Island: See Response to Request for Information #4. NWN does not have other written legal descriptions of the property.

- GASCO:

  Elliott Tract—The Portland Gas Company purchased the Elliott Tract prior to January 1, 1910. The Elliott Tract was the site of the Gasco works. The Elliott Tract is described as: the portion of Sections 12 and 13, Township 1 North, Range 1 West, Willamette Meridian, being a part of the W. W. Baker Donation Land Claim, described as follows:

  Beginning at the most Northerly corner of the Milton Doane Donation Land Claim: running thence South 32° West, tracing the Westerly boundary of said Doane Land Claim, 26 chains 60 links to a stone monument near the middle of the right of way of the Northern Pacific Railroad; thence South 44°30' West, still tracing said claim line, to the middle of the present traveled and established county road, 80 feet wide, commonly known as the Portland and Linnton Boulevard; thence Northwesterly, tracing the center line of the said county road to a point of intersection with the Southwesterly prolongation of

the boundary of the tract of land known as the Government Moorings, conveyed by (b) (6), to the United States of America, by deed dated June 10, 1906, and recorded in book 342, page 166, records of deeds of Multnomah County; thence Northeasterly, tracing the Easterly boundary of said Moorings Tract, and the said prolongation thereof, to low water mark on the left bank of the Willamette River; thence Southeasterly, tracing said low water mark on the left bank of said river, to the point of beginning; said tract being otherwise described as bounded on the Southeast by the Westerly boundary line of said Milton Doane Donation Claim; on the Southwest by the center line of the county road known as the Portland and Linnton Boulevard, and crossing the Southwest corner of said Section 12 nearly parallel to and just West of the railroad line of the Northern Pacific Railway; on the Northwest by the Easterly and Southeasterly boundary line of said Moorings Tract and a Southwesterly prolongation thereof; and on the Northeast by the Willamette River; including also the wharf rights and other riparian rights in and to said River in front of the lands last above described; EXCEPTING, however, a strip of land running across the land last above described, nearly parallel with said county road, known as the Northern Pacific right of way, which said strip was conveyed to the Northern Pacific Railway Company by deed of B. P. Isaacs and wife dated March 13, 1883, and recorded at page 242, book 65 of said records of deed. (NNG409010.)

Allen Tract—PGC purchased the Allen tract in 1939. PGC never developed the property. The parcel is described as: That certain tract or parcel of land bounded and described as beginning at a point marked by an iron pipe on the boundary line between the Milton Doane and the W. W. Baker Donation Land Claims which is north 32°00' east 419.21 feet from an iron pipe at the angular corner on said boundary line between said donation land claims; thence southeasterly and tracing the easterly line of the property conveyed by P. J. Mann and wife to Portland & Seattle Railway Company by deed dated August 7, 1906, and recorded in Book 367 of Deeds, at page 251 in the records of said Multnomah County, a distance of 1154.66 feet; thence north 32°00' east 1766.32 feet more or less to a point on the meander line of the Willamette River; thence continuing north 32°00' east a distance of 186 feet more or less to a point on the harbor line; thence north 60°45' west, tracing the harbor line, 1058.5 feet more or less to a point on the projection northeasterly of said boundary line between said donation land claims; thence, along said projection of said boundary line, south 32°00' west 220.94 feet more or less to the most northerly corner of said Milton Doane Donation Land Claim; thence 32°00' west, tracing said boundary line between said donation land claims, a distance of 1218.49 feet more or less to the point of beginning;

That certain right of way 30 feet in width along the southeasterly line of said W. N. Baker Donation Land Claim, as described in and conveyed by that certain deed from J. L. Scoggin to Alexander Gemznel, dated January 29,

1879, and recorded in Book 35 of Deeds, at page 253, in the records of said Multnomah County;

Also all warfage, riparian and other rights appurtenant to the above-described property or any thereof but subject to the rights of the public in North Front Street or Front Avenue over and across the tract of land first above described, and across said 30-foot easement or right of way described in said deed from J. L. Scoggin to Alexander Gejnmel. (NNG409010.)

- Easements: NW Natural has numerous pipeline easements and rights of way through various properties within the investigation area. Information regarding the location of these pipelines is CEII, exempt from public disclosure requirements pursuant to 5 U.S.C. § 552(b)(7)(F).

i. confirm whether Parcel R961130541 is the same as Parcel R961130410 and/or R961121110;

Response:

Parcel R961130541 is the same as Parcel R961130410 and the same as parcel R961121110. The alternative account numbers are referencing slightly different portions of the same parcel.

ii. location of underground utilities (telephone, electrical, sewer, water main, etc.);

Response:

- Property in Couch's Addition: None.
- East side MGP: None.
- Property near Swan Island: None.
- GASCO: The location of underground utilities is illustrated in Figures 4 and 5 of the Remedial Investigation Report, NW Natural, Gasco Facility, Portland, Oregon, April 30, 2007.
- Easements: None.

iii. location of all underground pipelines whether or not owned, controlled or operated by you;

Response:

- Property in Couch's Addition: unknown
- East side MGP: unknown

- Property near Swan Island: unknown

- GASCO: The locations of underground pipelines are illustrated in Figure 5 of the Remedial Investigation Report, NW Natural, Gasco Facility, Portland, Oregon, April 30, 2007. Figure 5 also illustrates the location of the Olympic Pipeline, and underground pipelines located at the Allen tract, currently owned by Siltronic Corporation.

  In the early 1970s, all historical underground pipelines at the Elliot Tract were removed in preparation for building a synthetic natural gas plant. The synthetic natural gas plant was never built. (NNG409172, -9177.) NWN does not have records of the layout of the historical underground pipes that were removed. (NWN0015227.)

  Easements: NW Natural has numerous pipeline easements and rights of way through various properties within the investigation area. Information regarding the location of these pipelines is CEII, exempt from public disclosure requirements pursuant to 5 U.S.C. § 552(b)(7)(F).

iv. surface structures (e.g., buildings, tanks, pipelines, etc.);

Response:

- Property in Couch's Addition:

  Block 5—The gas manufacturing plant, including the generating apparatus and boilers, were located at Block 5. (NNG409098.) A wharf with a covered coal storage area was constructed by 1860 along about 200 feet of riverfront between Everett and Flanders. (NNG 409257, -9258.)

  There were two generator houses on this block; the older one was a 33-foot by 100-foot brick building. It was originally a retort house. The building sat along the east side of Front Avenue and south of Flanders. The newer generator house was 50 feet by 61 feet, extending along Flanders Street from the older generator house. (NNG409098.)

  In 1872, the Portland Gas-Light Company constructed a brick building as a purifying house, exhauster and meter room. (NNG409098, -9132.) (NNG409257, -9258.) The building was along the north side of Everett Street between the river and Front Street. (NNG409098, -9132.) A coal shed, crude oil storage tank, and gas tank were located in-between the purifying house and the Retort house. (NNG409098, -9132.)

A compressor house, containing the gas compressors used for pumping gas to the holders on the east side, was 45 feet wide at one end by 15 feet at the other, by 48 feet long. It was separated from the boiler house by a driveway and occupied the northeast corner of Front and Everett Streets. (Id. at -9132.)

The old purifying house was a brick building, approximately 33 feet by 84 feet, and extending 28 feet to the eaves. It was located along the line of Everett Street between Front Street and the river. (Id.)

An historic map (undated) of the gas manufacturing plant illustrates an "ammonia well" located at Block 5. The map locates the ammonia well outside of the purifying house near the southwest corner of Block 5. (NNG409003, -008.) The map also identifies a "tar well" outside the generator/retort house. (Id.; NNG411776.) NWN has no other information about these wells.

The buildings described above occupied the site during the early 20th century. As described in response to request 4 above, the MGP at the property ceased operations in approximately 1913. In the 1920s, the City of Portland constructed a sea wall along the Willamette River. After acquiring the property from PGC in 1942, the City of Portland turned the property into a public park, now part of the Tom McCall Waterfront Park.

Block 6— Sanborn maps from 1889 and 1901, illustrate that the property was originally used principally for coal storage, but NWN has no information regarding the surface structures on Block 6 during that time. (NNG411775.) By 1908, purifiers and a relief holder were on the block. (NNG409098, -9132.) A 1908 Sanborn map appears to also illustrate a gas holder tank and a building at the southern end of the property. (NNG411777.) A building containing office space, and the meter and exhauster room occupied the northwest corner of Front and Everett Streets. (Id. at -9132.) In addition, along Flanders St. between First and Second was the distribution warehouse. It was 200 feet long and 50 feet wide at its narrowest point, extending to a width of 100 feet along Second Avenue.

Sometime after operations moved to the Gasco plant in 1913, PGC used Block 6 for a pipe storage yard. (NNG409010, -9024.) At that time, the property included a wood-framed pipe-dipping shed with a concrete floor and pipe storage yard. The entire block was enclosed by a board fence. (Id.) Access ramps for the Steel Bridge now occupy the property.

Block 7— See Response to Request for Information #4.

Block 16— See Response to Request for Information #4.

Block 17— See Response to Request for Information #4.

Block 23—Portland Gas Company and PGC utilized the property at Block 23 for storage. The storage shed at the property had a concrete floor and was initially used as a coal shed. Later, the storage shed was used for the storage of oxide and general storage purposes. (NNG409010, -9020.) The meter house at the southwest corner of First and Glisan Streets was built of brick and was 32 feet by 46 feet by 25 feet. (NNG409098, -9133.)

By 1908, a large holder tank, holder #3, was on this block. (NNG409010, -9020.) The holder tank remained at the property until at least 1956 but had been removed by 1969. (NNG411778; NNG411779.)

Block 24— On the northwest corner of Second and Flanders, PGC had a barn containing over 20 horse stalls, and an adjacent barn for company wagons. In later years, NWN used this portion of Block 24 as a distribution office and a store room building. (NNG409098, -9133; NNG409010, -9029.)

- East side MGP:

  Block 66— A building that housed the retort room, purifying room, and work shop was located at this block. The East Portland Gas Light Company also had a shed and a 10,000-cubic-foot gas holder at the property. (NNG 409010, -9032.)

  Block 77— Lots 3 and 4 in Block 77 (NE corner of S.E. 3rd and Ankeny Street) contained a 300,000-cubic-foot Holder #2 tank, which was used for storage of gas once the eastside plant was shut down. (NNG409426, -428.)

  In addition, a one-story "governor house" building and booster shed were located at the southwest corner of the property. (NNG409010, -032; NNG409003, 009.)

- Property near Swan Island: The property was undeveloped when NWN owned it.

- GASCO: The locations of current and historical surface structures are illustrated in Figure 5 of the Remedial Investigation Report, NW Natural, Gasco Facility, Portland, Oregon, April 30, 2007. (RI/FS work Plan, HAI, 1/1995, NNG400365-0469, Figure 3.)

As initially constructed in 1912 and 1913, the Gasco facility consisted of two main plants, a gas generating operation and a lampblack briquette plant. (HAHN00673, -0676.) The gas plant consisted of a machinery building, two generator buildings with waste heat boiler stacks and tar scrubbers, an oxide storage building, and a pump house. (Id.; NWN0005781, pp. 2 – 20.) The lampblack briquette plant consisted of a blower room, a filter room, the briquette plant, and the briquette storage building. (NWN0005781, pp. 11 – 15.)

In addition, when the plant was constructed it had a relief holder, with a capacity of 680,000 cubic feet. The holder was erected in a new steel tank south of the generator building at Gasco. (HAHN00673, -0676; NNG400365-0469.)

The Gasco facility initially had eleven purifiers, which increased to eighteen by 1951. (Id.; NNG400365-0469; NWN0005781.)

In 1923, PGC constructed facilities for the recovery of crude benzol in the southern corner of the Elliott Tract. (HAHN00722, p. 38; NNG400365-0469; NWN005781, p. 23.) The operation consisted of two plants: crude product was recovered in the oil washing plant, and then refined in the light oil purification plant. (HAHN00722, p. 38; NNG400365-0469; NWN005781, p. 23.) The scrubbers and purifiers for the plant consisted of a series of above ground tanks and piping. (NWN005781, pp. 8-9, 23 -24.) At the same time, PGC installed a tank farm associated with the benzol operations directly southwest of the light oil purification plant. (Id.) A coke oven was installed in 1941. (HAHN00001.)

The lampblack piping and the overflow piping from the water tank and briquette plant were of wood stave pipe bound spirally with steel wire and coated with asphaltum. (HAHN00684.) The main water line from the pump house, including the inlet and outlet headers in the machinery building, and connections to the water tank, were 20 inches in diameter. From this, branches were taken to the various machines and buildings. (Id.) Approximately 8,700 feet of water piping was installed during the initial construction of the plant. All steam, water, exhaust and oil piping were painted, each with an individual color in order to make their identity easily distinguishable. (HAHN00684.)

A 10-inch oil line connected the dock to the oil storage tank and a 16-inch oil suction line connected the tank to the pumps. (HAHN00684.) The main oil line from the pump house to the oil

heaters in the generator building was 10 inches in diameter. There were about 4,300 feet of oil piping.

On February 24, 1956, a fire broke out at the Gasco MGP. The fire began within a generator building, growing quickly due to escaping heavy fuel oil. (NNG411595.) Reports of the fire do not detail the damage or repair of surface structures.

In 1969, Northwest Natural Gas Company installed a 175,000 barrel tank at Gasco for storage of liquid natural gas. (NNG409172, -9175.) To make space for an LNG facility a portion of the old gas plant system was razed. A majority of the old gas works and by-product plant buildings were demolished and removed during 1968. (Id.) Later, NWN undertook additional demolition of the former MGP buildings including two of the Generator Buildings, the Machinery building, Power House, water tank, and smoke stack. (Id.) Today, only the office building (vacant) and several above ground storage tanks at the Koppers and PacTerm leasehold remain from the historical MGP operations. (Gasco RI, Appendix A.)

Presently, NWN's LNG storage facility occupies a portion of the property adjacent to NW St. Helens Road. In addition to the LNG storage tank and containment berm, the LNG facility includes piping and an additional infrastructure for the liquefying, storage, and distribution of natural gas.

The Shell Company of California executed a lease with PGC on February 11, 1915, for 5.2 acres of land along the waterfront of the Willamette River at the SE corner of the Gasco works property (the Elliott Tract) and an easement on a 50-foot strip of land extending to Linnton Road. (HAHN00402). Shell Oil Company built a dock and buildings on the river bank at the leasehold and constructed a 55,000 Bbl oil storage tank. (Id.)

On October 31, 1929, the Shell Company terminated the lease. (HAHN00402.) By 1957 the facility was apparently abandoned, and the buildings destroyed by 1973. (NNG400365, -0486.) Remnants of the Shell Dock and a building foundation remain at the edge of the Elliott Tract today.

The Koppers leasehold, located in the southwest corner of the Elliott Tract, includes six buildings and the former light oil refining tank farm containing approximately 26 ASTs of varying sizes. (GASCO RI, Figure 2, Appendix A.; NWN0002205.)

PacTerm leases five storage tanks in the northern portion of the site along the Willamette River and utilizes the on-site dock for product loading and unloading. Some of these tanks were originally utilized by PGC in its gasification operations, and were reconditioned for lease to PNO and subsequently, FAMM and PacTerm. (HAHN00272.) PacTerm utilizes above-ground pipelines that run from the dock to its storage tank to transport product to and from the facility. (Gasco RI, Figure 2 & Appendix A.) The PacTerm leasehold includes four buildings. (Id.)

In approximately 1960, Northwest Natural Gas Company sold the Allen Tract. The subsequent owners placed dredge and fill material on the property from approximately May 1966 through December 1975. According to PDC documents, the property owners had an agreement with the Spokane, Portland and Seattle Railroad to fill the property to a minimum elevation of thirty feet by 1973, and to construct industrial buildings at the property by 1978. (Reported in the RI Scoping document, p. 8.) In 1978, the property was sold to the PDC, who, in turn sold it to Wacker-Siltronic Corporation, now known as Siltronic Corporation. Wacker-Siltronic built a semiconductor chip manufacturing plant at the facility and continues to operate at that location. (Wacker-Siltronic, RI Scoping document 11/20/2000, NWN-LGL006992, p. 8.)

v. provide all documentation regarding, but not limited to the following:

1. a liquefied natural gas plant operated by Portland Gas and Coke Company;

Response:

In 1956, PGC began introducing natural gas into its system. (NNG409426, -9442, NNG409963, -9965.) The conversion to natural gas was accomplished by increasing the BTU content of the manufactured gas in sections of the distribution system and converting the appliances and equipment in stages until the appropriate BTU level was reached. (NNG409172, -9174; NNG409426, -9442.) In April 1958, oil-gas manufacturing was suspended and the oil-gas manufacturing plant retained for stand-by use. (NNG409426, -9442.)

In July 1958, PGC changed its name to Northwest Natural Gas Company. (NNG409172, -9174, NNG409454, -9456.) Northwest Natural Gas Company constructed the

company's first LNG storage tank on the Gasco site in 1969. This LNG storage facility is used to liquefy natural gas during times of low peak demand for storage until the gas is needed during times of peak demand, typically during the winter heating season. In addition to the LNG storage tank, the company maintains LNG storage control and distribution facilities at the site. No hazardous substances, as that term is defined by CERCLA § 101(14) or ORS 465.200(16), are manufactured, used, stored, released, or otherwise disposed of in LNG storage or natural gas distribution.

To provide a complete response to this Section 104(e) request, NWN would disclose information about pipe pressure, capacity of storage and distribution vessels, and engineering specifications. Such information constitutes critical energy infrastructure information and is exempted from public disclosure pursuant to the Freedom of Information Act ("FOIA"). This information has been and will continue to be available for EPA's inspection.

2. **a Koppers Company operated coal tar distillation plant;**

Response:

Koppers Company, Inc. (herein referred to as Beazer), constructed and operated a coal tar distillation facility at the southern portion of the Gasco property from 1966 until 1973. (NWN0002161, p. 3.) During the 1966 to 1973 timeframe, Beazer produced chemical oil, creosote, and pitch from coal tar distillates. (Gasco RI, p. 21; NWN0002161, p. 3.) Documents responsive to this request are attached.

3. **the five above-ground storage tanks, leased by Pacific Northern Oil; and**

Response:

Pacific Northern Oil leased 5 storage tanks in the northern portion of the Gasco site along the Willamette River from NWN. Documents responsive to this request are attached.

4. **the exact location of a Benzene plant on the Property.**

Response:

NWN assumes that this question seeks information concerning PGC's benzol plant.

PGC constructed a light oil refining plant on one acre of the Elliott Tract of the Gasco facility, south of the gas works. (NNG410041, -0059.) The light oil refining plant, a four-story building adjacent to NW St. Helens Road, was used in the production of benzol. Figure 6, attached to the Gasco RI, illustrates the location of the former light oil refining plant. (HAHN00722; Gasco RI, Figure 6.)

e. **over-water structures (e.g., piers, docks, cranes, etc.);**

Response:

- Property in Couch's Addition: A wharf extending over the Willamette River was constructed in approximately 1859. (NNG409257, -9258.) The wharf stretched between Flanders and Everett Streets NW, adjacent to Block 5. (Id.) The wharf included a storage shed, which was used to store coal and purifying materials. (NNG411775, NNG411776, NNG411777.) The pier was removed prior to construction of the seawall in approximately 1928 – 1930. (S-R00079.)

- East side MGP: None.

- Property near Swan Island: None.

- GASCO: In 1912, during the filling of the property, prior to construction of the gas works and lampblack briquette plant, a dock and trestle for access to the property from the river was constructed. (HAHN00673, p. 128.) The dock at the Gasco property continues in operation today. Photographs and figures, attached in response to this Section 104(e) request, illustrate the over-water structure throughout NWN and its predecessors' ownership of the property. (Gasco RI, Appendix A.)

  The Shell Company of California ("Shell") also maintained a separate dock at the site. Shell leased a piece of the Elliott Tract from PGC from February 11, 1915 through approximately November of 1929. (HAHN00402.) Shell constructed a dock at its leasehold. Apparently, upon termination of the lease, PGC took ownership of the dock. (Id.) No information documents any use of this dock by PGC, NWN, or any lessee. Most of the former Shell dock was dismantled prior to 1973, but remnants of the structure remain on-site today. (NNG400365, -0486.)

- Easements: None.

f. **dry wells;**

Response: None.

g. **treatment or control devices (e.g., surface water, air, groundwater, Resource Conservation and Recovery Act (RCRA), Transfer, Storage, or Disposal (TSD), etc.);**

Response:

- Property in Couch's Addition:

  Block 7—PDC conducted on site-treatment of ground water vapors at the Heliport. (NWN0004999.) Air ventilation was also discussed for the parking slab. (NWN0005000.) The need for soil venting system and groundwater monitoring for the Broadway Cab site was specified in that same year by DEQ. (NWN0004996; NWN0004990.)

- East side MGP: None.

- Property near Swan Island: None.

- Gasco:

  Air: During MGP operations, PGC treated haze emissions from the lampblack dryer with high potential electric discharges. ("Buildings and Grounds" description, undated, NWN0005781, p. 15.)

  Process Water: The plant generated waste process water containing petroleum emulsions. Over time, with increasing by-product capture and utilization, the volumes of tars and oil in the process wastewater would have diminished. Between 1913 and 1941, process water was discharged to or placed within low lying areas of the site to allow solids to settle out. By 1930, a separating sump, baffles and skimmers were used to remove traces of tar and oil from the process water. In approximately 1939, PGC installed a thickener overflow tank to reduce the potential for oil to discharge to the Willamette River. (NNG411667-89.) During plant expansions in the 1930s and 1940s, two wastewater settling ponds were constructed on the southeastern portion of the Gasco property. The ponds began operation in approximately 1941. (Gasco RI, p. 18.) A separating sump was used to capture lighter fractions floating on the surface of the ponds. (Id.) In 1949 and 1950, PGC began pumping tar emulsion from primary tar boxes to an emulsion tank, with overflow directed to secondary tar boxes. (NNG408972.) In approximately 1950, PGC worked under a plan approved by the Oregon Sanitary Authority to modify its settling ponds to increase the flow area, thereby extending the resident time for the settling to occur. In addition, PGC constructed an additional dike to divide the settling ponds and installed two skimmers to collect and convey oils atop the water to an oil separator box for processing. (NNG408928, HAHN00373.) In 1952, additional

modifications were made to the settling ponds to reduce erosion of the dikes. (HAHN00366.)

Post-MGP Water Treatment: In the fall of 1973, NWN routed all stormwater and groundwater accumulating in the LNG containment basin to a series of retention ponds, where the water passed through two oil separators, and into a ditch leading to the river. (HAHN00295.) The series of retention ponds, which were built in the area of the former settling ponds, also captured non-contact cooling water and other stormwater. (Gasco RI, Appendix A.)

In 1981, stormwater and non-contact cooling water from gasifying equipment was piped to the three retention ponds which then discharged the treated water to the Willamette River through an underground pipe pursuant to an NPDES permit for this discharge (#0100-J). (HAHN00299.)

In January 1994, NWN began operating a water treatment system for the LNG containment basin under NPDES permit #1500-A. The treatment utilized 10,000 pounds of granular activated carbon as a filter medium in a gravity type system. The carbon filtration system was subsequently modified to consist of four pressurized vessels, each containing 2,000 pounds of activated carbon. During system design, modeling estimated breakthrough to occur at 2.2 million gallons of water processed. NWN, however, regenerated the carbon at 2 million gallon throughput, or less, with the exception of 1 run at 3.1 million gallons. (This 3.1 million gallons was accomplished with weekly monitoring.) (NWN0008345.)

Currently, water from the containment basin is collected and pumped through an oil separator into two pressurized vessels each containing 10,000 pounds of granular activated carbon into the City of Portland sanitary sewer. The discharge is permitted under NWN's Industrial Wastewater Discharge Permit #500.022. Cherokee Company provides operation and maintenance services for the maintenance of the sump and water treatment equipment. Maintenance of the sump is conducted on an as-needed basis. Maintenance of the water treatment facility is ongoing as needed. (Source Control Data Gaps Work Plan, 11/2007, NWN-LGL005689, p. 5.)

All stormwater from the area at and around the Koppers Industries, Inc. leasehold, with the exception of stormwater flowing into two catch basins located in the southern portion of the NWN facility, is collected in a series of sumps and catch basins throughout the site and is stored to allow particulate settling prior to batch discharge. (Source Control Data Gaps Work Plan, 11/2007, NWN-LGL005689, p. 5.) Two catch basins in the southern portion of the site receive stormwater from the vicinity of the Koppers entrance and from the Burlington Northern right-of-way and

discharge directly into the Doane Creek culvert. (Source Control Data Gaps Work Plan, 11/2007, NWN-LGL005689, p. 5.) With the exception of these two catch basins in the gate entry area, all stormwater from the Koppers facility, and a small amount of boiler blow down water and condensate water, is treated by an oil/water separator and then stored in six stormwater storage tanks that have a total capacity of 220,000 gallons. This water is allowed to settle, and is tested prior to batch discharge at the Koppers outfall located immediately south of the property through a culvert leading to Doane Creek and ultimately to the Willamette River (City of Portland Outfall 22C) under Koppers' NPDES permit. (Source Control Data Gaps Work Plan, 11/2007, NWN-LGL005689, p. 5.)

Stormwater from two tank berms at the PacTerm (the former FAMM and PNO) leasehold flow into two separate sumps. Stormwater is then collectively pumped through a single oil water separator and flows in to a final sump prior to discharge to the Willamette River. (Source Control Data Gaps Work Plan, 11/2007, NWN-LGL005689, p. 4.) Another sump designed to catch any drips during fuel transfer at the fuel loading dock, pumps any stormwater captured into a separate oil water separator prior to discharge onto the ground in the eastern of the two tank berms. (Source Control Data Gaps Work Plan, 11/2007, NWN-LGL005689, p. 4.)

In approximately 1981, NWN installed a gravity flow storm drain system with a 300-gallon oil/water separator with the tank farm in the northern portion of the PacTerm leasehold. (HAHN00299.) Stormwater from the containment basins at the PacTerm tank farms flows to sumps then is pumped to an oil water separator and then discharges at an outfall on the river. (NWN0015725)

In addition, NWN is aware that Siltronic operates a wastewater treatment plant near the western corner of its property. (NWN-LGL007826.)

- Easements: None.

h. **groundwater wells, including drilling logs;**

Response:

- Property in Couch's Addition:

Block 7— In the late 1980s and early 1990s, the City of Portland, in cooperation with DEQ, conducted an investigation of the Broadway Cab/Old Town Garage site. As part of that investigation, the City of Portland's environmental consultants placed and sampled from a number of groundwater monitoring wells in the area. The location of those monitoring wells are shown in Figure 2 of the Subsurface Investigation report by GeoEngineers in 1992 (NWN0011104, -163) and Figure 1 of the Agreement to investigate site conditions and conduct additional measures

signed March 20, 1990. (NWN0010516, -539.) Drilling logs are included in the Subsurface Investigation report by GeoEngineers. (NWN0011104.) Those wells are located on the south, and eastern edges of Block 7, as well as, one well adjacent to Everett Street to the north of Block 7. Three monitoring wells were located at the block just south of the One Pacific Square building (Block 14), between NW Davis and Couch Streets bordered by First and Second Avenues. (NWN0010516, -539.)

Block 15—Hart Crowser conducted groundwater investigation beneath Block 15 in 1997. ((NWN0015727.) Groundwater samples contained PAHs. Metals detected in soil and groundwater may represent background conditions except lead, mercury, and zinc concentrations in soil, which may be elevated. Results of the investigation are attached in table 13.h.

- East side MGP: None.
- Property near Swan Island: None.
- GASCO: NWN has conducted extensive groundwater testing at the property. Drilling logs and a figure with groundwater well locations are attached to Table 13.h. Drilling logs are attached to the Gasco RI and the Siltronic RI Proposal.
- Easements: None.

i. **storm water drainage system, and sanitary sewer system, past and present, including septic tank(s) and where, when and how such systems are emptied and maintained;**

Response:

- Property in Couch's Addition: None. On information and belief, NWN believes that the City of Portland has installed and maintained sewer systems at the properties within Couch's Addition.
- East side MGP: None. On information and belief, NWN believes that the City of Portland has installed and maintained sewer systems at the properties within Couch's Addition.
- Property near Swan Island: None. The property was undeveloped while NWN owned it. NWN has no information about surface or subsurface structures, utilities, or property uses in the more than 60 years since it sold the property.
- GASCO: Figures 5, 6, 8, and 10a of the Remedial Investigation report illustrate the current storm water drainage system and sanitary sewer

system at the Gasco facility (Gasco RI.) Figure 8 includes historical site features including sewer pipes and outfalls. (Id., NWN0015725)

- Easements: None.

j. **subsurface disposal field(s), Underground Injection Control (UIC) wells, and other underground structures (e.g., underground storage tanks (USTs); and where they are located, if they are still used, and how they were closed;**

Response:

- Property in Couch's Addition:

Block 7— A leaking UST was removed from the Broadway Cab/Old Town Garage in approximately 1988. This removal was conducted by the PDC. NWN understands that the tanks and some surrounding contaminated soil were removed and disposed of under DEQ oversight. (NWN0004996; NWN0005040.) The City conducted additional investigation of the Broadway Cab/Old Town Garage Heliport site because of remaining contamination under the site.

Block 16— Two USTs were located at Block 16. Both USTs at the property have been removed. In July 1991, Pegasus Environmental Management Services, Inc. ("Pegasus") decommissioned by removal one 750-gallon waste oil UST from below the sidewalk on the east side of NW Third Avenue, north of NW Everett Street. (Pegasus Environmental Management Services, Inc., *UST Removal Status Report for Northwest Natural Gas Company*, 220 NW 2nd Avenue, Portland, Oregon 97209, 8/21/1991.) As documented in Pegasus' August 1991 report, results of confirmation soil samples collected by Pegasus below the base of the removed UST indicated the presence of a maximum of 5,820 ppm diesel-range petroleum hydrocarbons remaining in-place below the north end of the UST. Analyses of the worst case sample for waste oil constituents (volatile organic compounds, PCBs, and leachable metals) did not indicate the presence of concentrations greater than the most conservative generic Risk-Based Concentrations (RBCs) in effect. Further, gasoline-range petroleum hydrocarbons were not found to be present immediately beneath the UST at concentrations above laboratory method detection levels.

Pegasus conducted over-excavation activities at the UST pit to remove contaminated soil. (*Sampling Plan for Additional Subsurface Investigation*, HAI, 6/22/2001.) The UST pit was overexcavated to the point at which removal of additional soil could compromise the integrity of NW Third Avenue. Although the lateral and vertical extent of the over-excavation activities are not known, Pegasus did indicate in an October 22, 1991 letter that soils to a depth of seven feet below the former UST

base (approximately 20 feet bgs) were removed for disposal at the Hillsboro landfill. (*Sampling Plan for Additional Subsurface Investigation*, HAI, 6/22/2001.)

Hahn & Associates, Inc. ("HAI") conducted subsurface investigation activities related to the former waste oil tank during December 2002 and January 2003 as documented in an April 29, 2003 report. Analytical testing of soil and groundwater samples collected at the subject property indicates the presence of gasoline- and diesel-type petroleum hydrocarbons (similar to mineral spirits) in subsurface soils in the vicinity of the former waste oil UST. Contaminant delineation activities suggest the presence of 600 cubic yards of petroleum impacted soils extending across depths of 8 to 27 feet below ground surface in the vicinity of the former tank. Testing for risk parameters indicates naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene were found in soil and groundwater at concentrations exceeding the most stringent DEQ risk-screening criteria. A site-specific risk evaluation was completed which concluded that there is not a current or reasonably likely future unacceptable risk to human health or the environment resulting from residual petroleum impacts to soil and groundwater at the property. DEQ issued a "No Further Action" determination for this property on July 28, 2005.

In 1994, Spencer Environmental, Inc. removed a 10,000-gallon underground storage tank that had been used for gasoline. (Spencer, Inc. report to NWN, 2/1/1995, NWN0004803.) Spencer Environmental triple rinsed and examined the tank, finding it in excellent condition. The waste rinse material was placed into drums and disposed of at Northwest Envirosafe. (Id.) Confirmation subsurface sampling by Hahn and Associates detected no petroleum hydrocarbons in soil. (Id.; NWN0009255.)

In December 2002 and January 2003, NWN, at the request of Oregon DEQ, conducted subsurface investigation activities at Block 16. Subsequently, NWN's consultant's proceeded with a Risk Evaluation, which did not identify unacceptable risks to human health, and recommended a no further action designation for the site. (NWN0015594.) In 2005, Oregon DEQ determined that no further action was required at the site. (NWN0015590).

Block 24—Prior to paving the parking area at Block 24 in 1996, a heating oil tank was discovered by NWN's contractor. The tank was located below the sidewalk adjacent to third street at Block 24. (NWN0015411, -5413, -5426.) The tank was decommissioned in place in 1996 by Enviro-Comp services. The tank is reported to have had a capacity of between 1,800 to 2,000 gallons. (Id.) NWN did not operate the heating oil tank and has no information regarding its use. Enviro-Comp suggests in its

report that the tank was the heating oil tank for a building that had been demolished many years prior to the decommissioning. (Id.)

- East side MGP: None.
- Property near Swan Island: None. The property was undeveloped while NWN owned it. NWN has no information about surface or subsurface structures, utilities, or property uses in the more than 60 years since it sold the property.
- GASCO: None.
- Easements: None.

k. **any and all major additions, demolitions or changes on, under or about the Property, its physical structures or to the Property itself (e.g., stormwater drainage, excavation work); and any planned additions, demolitions or other changes to the Property; including Portland Gas and Coke Company's gasification plant and any underground storage tank decommissioning;**

Response:

- Property in Couch's Addition: Portland Gas Light Company began operations at Block 5 in Couch's addition in 1860, with additional storage at Block 6 by 1889. (NNG411775.) Based on review of Sanborn maps, by 1901, Portland Gas Company, the successor to Portland Gas Light Company, had installed two aboveground storage tanks at Block 5, presumably for use in the water gas process. In addition, some development took place on Block 6, including construction of storage and an office building. (NNG411776.)

  In 1906, Portland Gas Company switched to oil gas, with corresponding changes to the plant. Based on review of a 1908 Sanborn map, a holder tank was placed at Block 6, and four purifying tanks were installed on Block 6. In addition, an AST was placed at the NE corner of Block 7, and a large holder tank was established at Block 23. (NNG411777.)

  In 1913 all gasification operations at the property ceased. Operations were moved to the GASCO facility. The holder tank remained at Block 23 through 1950, and was removed sometime prior to 1970. (NNG411779; NNG411778.) PGC's administrative offices, stables, garage, and some general storage continued at Block 6.

  A building on Flanders and Second used as a garage, located at Block 16, was owned by NWN and used as a garage in at least the 1980s and 1990s. As described in subsection j, above, NWN removed two USTs from this location and has received a no further action letter from DEQ.

NWN currently owns Block 24, which is used for employee parking and storage of some display and event materials (e.g., tents, tables). As described in subsection j, above, NWN removed a heating oil UST from this location. NWN leases office space at Block 14.

In the late 1920s, the City of Portland constructed the seawall along the Willamette's west bank. (S-R00079.) Block 5 was sold to the City of Portland and State of Oregon in the early 1940s in connection with improvement projects along Front Avenue. (NNG409010, -9026.) The City built Harbor Drive along the west bank in the 1940s and numerous public and private buildings were constructed or redeveloped in Couch's Addition. (NNG411778.) In addition, Sanborn maps from 1950 illustrate that roads, ramps related to the Steel Bridge, and private and public buildings have been constructed on Block 6 and on or adjacent to Block 5. In 1974, Harbor Drive was torn up and construction of a waterfront park began. (Id.; NNG411779.) Block 5 is now Tom McCall Waterfront Park.

- East side MGP: In 1892, the east side MGP was shut down. The gas manufacturing plant was subsequently demolished. Block 65 was sold in 1922. A holder tank and generator continued to operate at Block 77 until at least 1940. (NNG409010, -9026.) The properties are currently occupied by retail and commercial buildings.

- Property near Swan Island: None. The property was undeveloped while NWN owned it. NWN has no information about surface or subsurface structures, utilities, or property uses in the more than 60 years since it sold the property.

- GASCO: In approximately 1915, Shell Oil Company of California leased the southeastern portion of the property adjacent to the Willamette River. (HAHN00402.) Shell placed a 55,000-barrel oil tank and constructed a dock, pump house, and other buildings to use in its operations. (HAHN00402.) Shell terminated its lease in November of 1929, and no operations have taken place at that portion of the site since that time. (HAHN00402; NNG400365, -0486.) The tank appears to have been removed by 1940. (Gasco RI, Appendix A.)

  In the mid-1920s, PGC constructed a light oil purification and refinery. (HAHN00194.) In addition, around the same time, PGC developed markets for the sale of the tar generated from the gas manufacturing process. (HAHN00194.) PGC constructed facilities, including a series of storage tanks and dehydrators, for the processing of the tar into a marketable by-product. (HAHN00194.)

  In 1939, PGC purchased the property known as the Allen tract directly south of the Gasco property. PGC did not construct any buildings on this site. (Gasco RI, Appendix A.)

In approximately 1941, settling ponds were constructed at the southern edge of the Elliott Tract. In the same year, coke ovens were installed. (NNG409854; NNG410365.)

In 1947, the works at Gasco underwent significant improvements. The final construction reports, attached in response to this information request, provide photographs of improvements and detail the specific modifications made to the structures and works. (NNG409473.) In summary, the plant converted oil gas generators from manual to automatic operation. (NNG409473, -9533.) The plant added new equipment foundations for all major equipment for a new hard pitch batch unit, paved portions of the grounds and installed equipment and piping to service the hard pitch batch still. (NNG409473, -9554.) Three additional steam boilers were installed to supplement steam supply for the plant, including addition of equipment and piping. (NNG409473, -9552.)

In 1956, PGC introduced natural gas into its distribution system. The oil gas manufacturing operations were subsequently placed on standby. Operations since 1958 have been limited to storage and distribution of natural gas. (NNG409454, -9456.) In 1969, Northwest Natural Gas Company installed a 175,000 barrel liquid storage tank at Gasco. (NNG409172, -9175.)

To make space for the LNG facility it was necessary to raze a portion of the old gas plant system. A majority of the old gas works and byproduct plant buildings were demolished and removed during 1968. (Id.) Later, NWN undertook additional demolition of the former MGP buildings including two of the Generator Buildings, the Machinery building, Power House, water tank, and smoke stack. (Id.)

In approximately 1960, Northwest Natural Gas Company sold the Allen Tract. The subsequent owners placed dredge and fill material on the property. From approximately May 1966 through December 1975, fill material was placed at the property. According to PDC documents, the property owners had an agreement with the Spokane, Portland and Seattle Railroad to fill the property to a minimum elevation of thirty feet by 1973, and to construct industrial buildings at the property by 1978. (Reported in the RI Scoping document, p. 8.) In 1978, the property was sold to the PDC, who, in turn sold it to Wacker-Siltronic Corporation, now known as Siltronic Corporation. Wacker-Siltronic built a semiconductor chip manufacturing plant at the facility and continues to operate at that location. (Wacker-Siltronic, RI Scoping document 11/20/2000, NWN-LGL006992, p. 8.)

- Easements: None.

l. **all maps and drawings of the Property in your possession; and**

Response:

- Property in Couch's Addition: Maps and drawings attached.
- East side MGP: Maps and drawings attached.
- Property near Swan Island: Maps and drawings attached.
- GASCO: Maps and drawings attached.
- Easements: A response to this Section 104(e) request would disclose information about pipe location, distribution centers, and critical junctures for delivery. Such information constitutes critical energy infrastructure information and is exempted from public disclosure pursuant to the Freedom of Information Act ("FOIA"). This information has been made and will continue to be available to EPA.

m. **all aerial photographs of the Property in your possession.**

Response: See Tab 13.m attached.

14. **For Properties adjacent to the Willamette River, provide specific information describing the river-ward boundary of private ownership and where state aquatic lands and/or state-management jurisdiction begins. Provide a map that delineates the river-ward boundary of each Property.**

Response:

- Property in Couch's Addition: Since the Portland Gas Manufacturing plant ceased operations in 1913, numerous changes have impacted the river at the property, including the building of a seawall. NWN suspects that the riverward boundary has changed since the company owned the property. NWN is unable to provide specific information or a map delineating the riverward boundary of the property either now or at the time PGC owned it.
- East side MGP: N/A
- Property near Swan Island: The property was undeveloped while NWN owned it more than 60 years ago. NWN has no information about the riverward boundary of the property.
- GASCO: The river-ward boundary of the property is defined as the line of ordinary high water. (NWN-LGL005820.) A map is included at Figure 2 of the DSL Temporary Use Permit for remedial work. (NWN-LGL005820.)
- Easements: N/A.

15. **For each Property, provide all reports, information or data you have related to soil, water (ground and surface), or air quality and geology/hydrogeology at and about each Property. Provide copies of all documents containing such data and information, including both past and current aerial photographs as well as documents containing analysis or interpretation of such data. Also**

Response:

NWN objects to the question as duplicative, vague and ambiguous. NWN also objects to the request insofar as it includes any additional request suggested by the word "Also."

- Property in Couch's Addition: See Response to Request for Information #72.
- East side MGP: None.
- Property near Swan Island: None.
- GASCO: See Responses to Requests for Information #72 and 13.m.
- Easements: None.

16. **Identify all past and present solid waste management units or areas where materials are or were in the past managed, treated, or disposed (e.g., waste piles, landfills, surface impoundments, waste lagoons, waste ponds or pits, tanks, container storage areas, etc.) on each Property. For each such unit or area, provide the following information:**

a. **a map showing the unit/area's boundaries and the location of all known units/areas whether currently in operation or not. This map should be drawn to scale, if possible, and clearly indicate the location and size of all past and present units/areas;**

b. **dated aerial photograph of the site showing each unit/area;**

c. **the type of unit/area (e.g., storage area, landfill, waste pile, etc.), and the dimensions of the unit/area;**

d. **the dates that the unit/area was in use;**

e. **the purpose and past usage (e.g., storage, spill containment, etc.);**

f. **the quantity and types of materials (hazardous substances and any other chemicals) located in each unit/area;**

g. the construction (materials, composition), volume, size, dates of cleaning, and condition of each unit/area; and

h. provide all documentation regarding, but not limited to the following:

i. the storage of lampblack and spent oxides in on-site waste piles on the Property;

ii. any settling ponds used by to separate tars from wastewater;

iii. any tar disposal areas at the Property;

iv. any pits used to dispose of creosote, pitch, and/or coal tar from distillation plant activities; and

v. any covered or uncovered outdoor waste piles.

Response:

NWN objects to this request as overbroad, vague, and ambiguous, especially in its request for all information concerning "materials." NWN has focused its response on information relevant to potential CERCLA response actions.

- Property in Couch's Addition:

Lampblack Storage— Lampblack, a byproduct of the oil gasification process, would have been present at the Portland Gas Manufacturing site for only about the last seven years of plant operations, approximately 1906 until 1913. (NNG409098.) PGC documents indicate that lampblack was at first discarded and then stored in bins before being fed back into the boilers. (NNG409098; NNG409712, -9767.) Lampblack was removed through lampblack separators, where process water containing lampblack was run through the separators. (NNG409098, -9146.) The lampblack would fall down to the bottom bin. When a sufficient quantity had accumulated, the separator would be temporarily shut off and the lampblack was shoveled out of the separator through a sliding door into troughs, which were carried by conveyor to bins in the boiler room. (Id.) Apparently, excess lampblack was stored in the former coal storage shed. (NNG411777.) In approximately 1911, PGC began producing lampblack briquettes. (NNG409712, 767-768; NNG409712, -9767.)

Waste Oil Tank—NWN utilized a 750-gallon UST for waste oil at the garage located at 2nd and Flanders, Block 16. The tank was located below the sidewalk on the east side of NW Third Avenue,

north of NW Everett Street. (Pegasus Environmental Management Services, Inc., *UST Removal Status Report for Northwest Natural Gas Company*, 220 NW 2nd Avenue, Portland, Oregon 97209, 8/21/1991.) The tank was decommissioned by removal in 1991. (Id.) Additional investigation related to the former waste oil UST was completed in 2003 and a "No Further Action" determination was received from the DEQ in 2005. See response to request for information #13.j.

- East side MGP: None.

- Property near Swan Island: None.

- GASCO: Aerial photographs showing each area are included in Appendix A to the Gasco RI.

  Northern Spent Oxide Pile— PGC stored spent oxide near the northern corner of the Gasco property, north of the former gas purification reactor area and northwest of the oxide building. The spent oxide pile was comprised, primarily, of wood shavings and was a residue from gas purification. (Gasco RI, p. 17 and Figure 8.) Spent gas purification materials accumulated at this location from 1913 until 1956. (Id. at p. 17.) When PGC switched to natural gas distribution in 1956, the spent oxide storage area is estimated to have contained 80,000 to 94,000 cubic yards of material. (NNG411695, -1701; NNG409172, -9177.) The stockpile was impacted by flooding at the site in 1948 and 1965. (Gasco RI, Appendix A.) The stockpile was removed from the site in approximately 1973 and was disposed of at an off-site sanitary landfill. (Id.; NNG411136; NNG409172.) Some company reports suggest that a portion of spent oxide remained onsite and was, ultimately, mixed along with imported quarry rock and tar material from the tar ponds and used to fill the effluent tar pond area at the eastern corner of the property. (HAHN00272; Gasco RI, p. 17.) A map and aerial photographs showing the northern spent oxide pile is included in Figure 6 and Appendix A to the Gasco RI.

  Southern Spent Oxide Pile— Aerial photographs illustrate a stockpile of material located south of the common Siltronic/Gasco property line near the western corner of the Siltronic property. Aerial photographs indicate that the stockpile was present at this location between 1952 and 1966. (Gasco RI, p. 21 and Appendix A.) The material in the storage area is identified in aerial photographs as spent oxide. (Gasco RI, Appendix A.) NWN records do not indicate the nature of material stored in this stockpile. NWN sold this property in 1960 and the material remained onsite until filling operations by the property owners and

the Port of Portland during the late-1960s and 1970s. (Id.) The final disposition of this material is unknown. (Gasco RI, p. 21.) A map and aerial photographs showing the southern spent oxide pile is included in Figure 6 and Appendix A to the Gasco RI.

Lampblack Storage Area— A lampblack briquette manufacturing operation was constructed at the same time as the gas works. (Id., 10-13; NNG409464, -469.) Lampblack derived from gas manufacturing operations at the GASCO plant was, from the beginning, made into briquettes and sold. (HAHN00137, p. 10.) PGC placed residual lampblack in an area south of the current southernmost PacTerm fuel storage tank area (east of the current LNG tank containment area.) (HAHN00380, p. 2; NNG410374; NNG400365, -0471; HAHN00380,-0381.) This area was used for lampblack storage from 1913 until 1956. Residue lampblack storage areas appear to have been impacted by flooding of the site in 1948 and 1965. (Gasco RI, Appendix A.) A map and aerial photographs showing the lampblack storage area is included in Figure 6 and Appendix A to the Gasco RI.

Settling Ponds— The process water settling ponds (one large, approximately 2.5-acre pond and one small approximate 0.5-acre elongated pond) were constructed near the eastern corner of the current Gasco property and came online in 1941. Prior to that time, waste materials that had not been developed into marketable by-products (wastewater with petroleum emulsions containing some amounts of lampblack and tars) were discharged to, or placed within, lowland areas of the site with drainage features leading from the production area to the Willamette river. (Gasco RI, p. 17.) The process water settling ponds received wastewater from tar boxes and lampblack dryers (tar, lampblack, oil, and oil-water emulsions), and were meant to reduce the discharge of effluent to the river by allowing heavy components of the effluent to settle out. A separating sump was used to capture lighter fractions floating on the surface. As shown on aerial photographs (Gasco RI, Appendix A), the smaller settling pond straddled the border of the current Siltronic property (Figure 6). As observed in 1948 aerial photographs, the former tar settling pond area was susceptible to flood inundation and periodic submergence beneath the river, which may have caused loss of materials to the river.

In approximately 1950, PGC, working under a plan approved by the Oregon State Sanitary Authority, modified its settling ponds to increase the flow area, which extended the resident time for settlement of heavy components to occur, constructing an additional dike to divide the settling ponds, and installing two skimmers to collect and convey oils atop the water to an oil

separator box for processing. (HAHN00268; HAHN00373.) The larger of the settling ponds was designed to overflow via a weir into the western end of the narrower pond located on the boundary of the Allen Tract and Elliott Tract (the current NW Natural / Siltronic property boundary). (Gasco RI, p. 18, Figure 6, and Appendix A.) This pond, in turn, was designed to overflow via a weir on the eastern end into a channel that directed discharge into the Willamette River at a point near the current NW Natural/Siltronic property line. (Id.)

The outlet from this pond to the Willamette River was apparently blocked in 1951 and overflows from these ponds were instead directed to the approximate 400-foot-wide former lowland area of the Siltronic property adjacent to the current property boundary. (Id.)

Records indicate the top of the berms surrounding the settling ponds ranged in elevation from approximately 21 to 26 feet msl (approximately 5 to 15 feet below the current ground surface).

PGC records further indicate that to maintain capacity within the settling ponds and to minimize discharges into the river, the ponds were periodically cleaned out. (Id.) Settling pond clean-out reportedly involved use of drag lines and trucks to place the "soft/tarry substance" removed from the ponds on the ground surface immediately south of the ponds (i.e., the former adjacent low area at Siltronic). (HAHN00366.)

In 1973, filling and reconfiguration of the large settling pond located on the Gasco property began (May 1973 aerial photograph). Company records indicate this pond contained an estimated 30,000 cubic yards of tar, which was mixed with quarry rock and spent iron oxide material from the northern portion of the property in a 3-to-1 blend (three cubic yards rock/spent oxide/soil to one cubic yard tar). Subsurface boring log data indicates that fill used to form the embankment between the river and the settling ponds did not contain tar, while the area immediately inland of the embankment consists of 25 to 30 feet of fill mixed with tar. A map and aerial photographs showing the settling ponds is included in Figure 6 and Appendix A to the Gasco RI.

Low-Lying Overflow Area— Prior to 1951, overflow from the southern settling pond outlet discharged to the river near the current NW Natural/Siltronic property line. In 1951, settling pond overflows were directed to the lowland area, which roughly corresponds to the northern 400 feet of the present-day Siltronic property. A surface water channel located immediately south of

the settling ponds (at the current common property line between NW Natural and Siltronic) was relocated 400 feet further south with a berm constructed immediately north of the new channel. Effluent overflows to this area ceased in1956, when MGP operations ceased. Figure 6 and aerial photographs from 1952 through 1964 (Appendix A) depict the ponds and the adjacent lowland area and drainage ditch.

Records indicate that CH2M HILL investigated the property in January 1960, identifying between 0.6 feet to 14 feet of soft tar within the 400-foot-wide lowland area. (HAHN00565, HAHN00568, HAHN00569.) Hahn and Associates, based on this finding, have estimated that as much as 40,000 cubic yards of solid/semi-solid tar may have been present within the lowland area on the Siltronic property at that time. (Gasco RI, pp. 20-21.)

NW Natural sold the Allen tract in 1960. As shown in aerial photographs (Gasco RI, Appendix A), grading and filling of the low-lying area on the Siltronic property began in 1966 and continued through 1973. Fill material in the 400-foot strip area also included dredge material (1971 and May 1973 aerial photographs), and light-colored material that appears to have been imported by dump trucks (October 1966 and May 1973 aerial photographs). (Gasco RI, Appendix A.) A map and aerial photographs showing the unit/area is included in Figure 6 and Appendix A to the Gasco RI.

Koppers Land Application Area— Koppers Company, Inc. reportedly generated approximately 1,500 gallons of wastewater per day during the time that the plant was used as a coal tar distillation facility. (Gasco RI, p. 22.) Koppers land disposed these wastewaters at the eastern portion of their facility, at a location immediately southwest of the former tar settling ponds. (Id.; S-R00960-976.) The Koppers land disposal area is depicted in 1966, 1968, and 1972 aerial photographs of the site. (Gasco RI, Appendix A.) Surface staining is apparent across the Koppers' lease area as depicted in a 1972 aerial photograph. (Id.) A map and aerial photographs showing the Koppers land application area is included in Figure 6 and Appendix A to the Gasco RI.

- Easements: None.

17. If the unit/area described above is no longer in use, how was such unit/area closed and what actions were taken to prevent or address potential or actual releases of waste constituents from the unit/area.

Response:

- Property in Couch's Addition:

  Lampblack Storage— NWN has no information.

  Waste Oil Tank— See Responses to Requests for Information #13.j. and 16.h.

- GASCO:

  - **Northern Spent Oxide Storage Area**: The stockpile was removed from the site in approximately 1973 and was disposed of at off-site sanitary landfill locations. (NNG411695, -1701; NNG409172, -9177.) Some company reports suggest that a portion of spent oxide remained onsite and was, ultimately, mixed along with imported quarry rock and tar material from the settling ponds for use as fill in the settling ponds at the eastern corner of the property. (HAHN00272; Gasco RI, p. 17.)

  - **Southern Spent Oxide Storage Area**: The storage pile, supposedly containing spent oxide, located on the property line of the Allen tract was removed sometime after 1966. (Gasco RI, p. 21.) NWN sold this property in 1960 and the material remained onsite until filling operations by the property owners and the Port of Portland during the late-1960s and 1970s. (Gasco RI, p. 21.) The final disposition of this material is unknown.

  - **Residue Lampblack Storage Area**: In the late 1960s, during the demolition of the old gas plant, residue lampblack was trucked off-site. (HAHN00272.) Aerial photographs appear to show the lampblack removed from the area prior to 1965. (Gasco RI, Appendix A.) Its final disposition is not known.

  - **Low-Lying Overflow Area**: Northwest Natural Gas Company sold the Allen tract to A. Victor Rosenfeld, H.A. Andersen and Gilbert Schnitzer in 1960. Thereafter, fill material was placed at the property. (Gasco RI, Appendix A; Wacker-Siltronic, RI Scoping document 11/20/2000, NWN-LGL006992, p. 8.) From approximately May 1966 through December 1975, approximately 1,500,000 cubic yards of fill material was placed onto the property as part of the filling activities. (Siltronic RI Proposal, November 17, 2006.) The fill consisted of rock from a nearby rock quarry, as well as more than 700,000 cubic yards of material dredged from the river by the Port of Portland. (Wacker-Siltronic, RI Scoping document 11/20/2000, NWN-LGL006992, p. 8.) According to aerial photographs, the fill material was placed atop the former low-lying effluent overflow area. (Gasco RI, Appendix A.)

Observations of tar or oil during various investigations or construction activities at the Siltronic site, as well as dark soils visible in aerial photographs between 1967 and 1971, suggest the possibility that MGP-related wastes from the 400-foot-wide settling pond overflow area and/or the spent oxide pile may have been redistributed and combined with fill placed at various portions of the Siltronic property during filling activities. (Siltronic RI Proposal, November 17, 2006; Gasco RI, Appendix A.)

- **Settling Ponds:** In 1973, filling and reconfiguration of the large settling pond at the Gasco property began. (Gasco RI, p. 20, Appendix A.) The pond contained an estimated 30,000 cubic yards of tar, which was mixed with quarry rock at the site. (Id.) Subsurface boring logs indicate that fill used to form the embankment between the settling pond and the river did not contain tar. The area immediately inland of the embankment does contain some fill mixed with tar. (Id.) NWN recently placed hard piping through the area of the former settling pond for the discharge of stormwater and non-contact cooling water.

18. For each Property, provide the following information regarding any current or former sewer or storm sewer lines or combined sanitary/storm sewer lines, drains, ditches, or tributaries discharging into the Willamette River:

a. the location and nature of each sewer line, drain, ditch, or tributary;

b. the date of construction of each sewer line, drain, ditch, or tributary;

c. whether each sewer line, or drain was ever connected to a main trunk line;

d. whether each sewer line, drain, ditch, or tributary drained any hazardous substance, waste, material or other process residue to the Willamette River; and

e. any documentation regarding but not limited to the following on any and all outfalls to the Willamette River which are located within the boundaries of the Property(ies). Your response should include, but not be limited to:

i. the areas serviced by the outfalls; and

ii. the type of outfall (i.e., storm water or single facility operational).

Response:

- Property in Couch's Addition: None.
- East side MGP: None.

- Property near Swan Island: None. The property was undeveloped while NWN owned it. NWN has no information about drainage to the Willamette river in the more than 60 years since it sold the property.

- GASCO:

  Elliott Tract: Initially, the Gasco facility included approximately 5,000 lineal feet of sewer piping, which ranged in size from 4 to 18 inches in diameter. (HAHN00673, pp. 12-15.) This was made up of hub-end concrete sewer pipe, part of which was laid at a depth of 15 feet. Manholes were installed at sewer junctions where necessary and catch basins were provided to take care of the surface drainage. (Id. at HAHN00673, pp. 12-15.) The sewer line had two outfalls at the Willamette River.

  One outfall was located at the northern-most edge of the property line adjacent to the U.S. Government Moorings facility. At the beginning of the 1950s, PGC noted oil escaping to the river through the north plant sewer line, which discharged to the river adjacent to the U.S. Government Moorings at the northern-most waterfront edge of the Gasco property. (HAHN00380.) Upon investigation, PGC discovered that a portion of this sewer line had collapsed. (Id.) In approximately 1951, a new interceptor sewer outlet for the north portion of the plant was constructed, eliminating the oily discharge to the Willamette River. (Id.; HAHN00366.) This outfall has subsequently been abandoned. (Gasco RI, Figures 5 and 6.)

  The second line was made up of two lateral lines that discharged into a main interceptor. The east lateral originated in an area east of the machinery building. (HAHN00380.) The west lateral originated adjacent to the retort area (also referred to as Generator Building no. 1). (Id.; NNG409086.) The main interceptor ran from west to east and discharged into the river east of the Gasco dock. (Id.)

  In 1952, PGC noticed leakage of an oily substance from the southern outfall. (Id., HAHN00380.) PGC personnel investigated the leakage and recommended actions to eliminate the discharges. (Id.) The water drained by the south sewer system included process water from the gas water-coolers, the coke plant, waste water from the light oil plant coolers, and drainage from the generator building yards. (HAHN00366.)

  PGC noted in 1952, that stormwater potentially accumulated oil and discharged it into the sewer system. (NNG408939.)

  Figure 5 of the Gasco RI illustrates the current sanitary and storm sewer lines at the property. Similarly, Figures 1 and 2 of the Source Control Data Gaps Work Plan, Section 2, Anchor Environmental, November 2007 (NWN-LGL005689) illustrate stormwater drainage areas at the property.

Figure 6 of the Gasco RI illustrates historical features including sanitary/storm sewer lines, drainage ditches, channels and other features at the property.

Prior to 1952, overflow from the settling ponds, after treatment by the system of separators, skimmers, and baffles approved by the Oregon Sanitary Authority, passed into the Willamette River. See Responses to Requests for Information #10.e., 16.h. and 22.c.

Allen Tract: Figure 6 of the Gasco RI illustrates historical features including sewer lines, drainage pond, channels and other features at the property. Aerial photographs from 1952 through 1964 illustrate a channelized stream discharging into the Willamette River from the property. (Gasco RI, Appendix A.) Figure C10 in the Siltronic RI workplan illustrates the current sewer lines at the Siltronic property.

- Easements: None.

19. **Provide copies of any storm water or property drainage studies, including data from sampling, conducted at these Properties on stormwater, sheet flow, or surface water runoff. Also provide copies of any Stormwater Pollution Prevention or Maintenance Plans or Spill Plans developed for different operations during the Respondent's operation of each Property.**

Response:

- Property in Couch's Addition: None.
- East side MGP: None.
- Property near Swan Island: None.
- GASCO: Based on the NAICS and SIC codes applicable to NWN's LNG operation, NWN is not required to obtain an NPDES permit for Stormwater under applicable state and federal regulations. NWN, therefore, does not have a Stormwater Pollution Prevention or Maintenance plan for the facility. NWN has established a Spill Prevention Plan for the Wastewater Treatment Plant at the LNG facility; a copy is attached. (NWN-LGL005432.) NWN has taken surface water samples, analyzed property drainage, and recently conducted sampling of catch basin sediments and stormwater. Copies of these documents are included in response to this Section 104(e) request.
- Easements: None.

Section 4.0 Respondent's Operational Activities

20. Describe the nature of your operations or business activities at each Property. If the operation or business activity changed over time, please identify each separate operation or activity, the dates when each operation or activity was started and, if applicable, ceased.

Response:

- Property in Couch's Addition:

  Block 5 & 6—Beginning in approximately 1860, Portland Gas-Light Company operated a coal gasification plant at Block 5 adjacent to the Willamette River between Flanders and Everett Streets. (NNG409564.) Coal was received by boat, which unloaded cargo at the wharf. Originally, the plant provided gas for lighting. At that time, Portland had a population of less than 3,000 people. (NNG409426.) Storage and some administrative offices were located on Block 6.

  The original gas plant consisted of six small retorts with a daily capacity of 40,000 cubic feet. The gasification operation left residues of coke and tar. (NNG409426.) Unspecified additions to the plant were made in 1878 and 1883. (NNG409426, -427.)

  The gas company's service was interrupted by a flood in 1894. The company then put in a new plant above the high water mark, still at Block 5. (NNG409426, -4328.) In the new plant, the company installed two water gas sets, producing gas from both the gas manufacturing process and, beginning in 1897, the water gas manufacturing process. (NNG409426, -428.)

  In 1906, the plant began manufacturing gas using the oil-gas process. (NNG409098.) Oil tanks, holder tanks, and purifying tanks were installed at Blocks 5 and 6 for the oil-gas process. (Id.)

  In 1912, PGC began construction of a new gas manufacturing plant at the Gasco property (Elliott tract). Upon activation of the Gasco Plant, the Portland Gas Manufacturing site ceased operations and was dismantled shortly thereafter. (NNG409319, -9333.)

- East side MGP: The East Portland Gas Company operated a coal manufactured gas plant located at East 2nd & Ankeny Street, Block 65, from 1883 until 1892. (NNG409426, -430.) The plant had three retorts in operation. (NNG409426, -428.) An approximately 30,000-cubic-foot holder was located across the street at block 77, 3rd Avenue and Ankeny Street. (NNG409426, -428.)

  In 1892, the Portland Gas Company merged the Portland Gas Light Company with the East Portland Gas Company. A pipe was extended from the Portland Gas Manufacturing plant across the river to service east Portland and the east side plant was shut down and dismantled in approximately 1892. (NNG409319,-

9332.) When the East Side MGP shut down, Portland Gas Company continued to use the holder tank at Block 77 and added Holder tank #2, with a 300,000-cubic-foot tank, to service the east side of Portland. Holder tank #2 was installed at Block 77 and remained at the NE corner of SE 3rd Avenue and SE Ankeny Street until at least 1940. (NNG409319, -9332.)

Apparently, PGC sold a majority of the former plant property in1922. (NWN0000418.) PGC had relinquished its ownership of the property at 3rd Avenue and Ankeny Street by 1952. (NNG409010.)

- Property near Swan Island: PGC purchased the "Burrage Tract," a nearly 42-acre parcel near Swan Island on approximately January 10, 1910. PGC may have purchased the property as a possible site for a new gas manufacturing plant outside downtown Portland. Once the company purchased the GASCO property, PGC abandoned plans to develop the property. By 1940, PGC had sold portions of the property. (NNG409010.)

  The property was vacant undeveloped land during the time NW Natural owned it. (NNG409010.)

- GASCO: NWN's predecessor, PGC, operated an oil gas manufacturing plant, as well as a number of facilities for the refining and processing of by-products. (HAHN00012; HAHN000194.)

  In 1913, an oil-gas plant was constructed on the west bank of the Willamette River about seven miles north of Portland (the Gasco Plant). (NNG409319, -9333.) PGC manufactured and distributed manufactured gas from this facility from 1913 until approximately 1956. PGC utilized primarily the "Pacific Coast oil gas process." (Gasco RI, p. 14.)

  In 1927, the company added a second generator building to the oil-gas manufacturing operations to house two large generators. Then, in 1935, the gas making plant was converted to the use of heavy fuel oil to increase the recovery of by-products, the processing and refining of which is described in the following paragraphs. (NNG409319, -9336.) In the mid-1940s, PGC undertook an extensive construction program to increase gas making capacity and to switch from manual to automatic operation. (NNG409473.) In the summer of 1956, PGC shut off its oil-gas manufacturing operations and converted to natural gas distribution. (Id. at 17.)

  At the time PGC constructed the Gasco Plant, the company also built a plant to manufacture lampblack briquettes at the Gasco property. (NNG409319, -9333.) PGC continued to develop markets for by-products from the gas manufacturing process. In 1923, the company began marketing benzol as an additive to increase motor fuel efficiency, and sold it for the manufacture of synthetic rubber during World War II. (Id. at -9335.) Production of benzol continued until gas manufacturing operations ceased in 1956. (Id. at -9335.) In 1925, PGC

developed a process for refining tar, a residual of the gas manufacturing process, for use as a road binder. The demand for road binder tar, as well as tar as an electrode pitch, exceeded the supply on hand at Gasco. (Id. at 15.) NWN also developed and processed the following by-products for sale:

-soft pitch
-specification creosote
-hard pitch
-crude naphthalene
-motor fuel
-toluene
-xylene
-solvent naphtha

(HAHN000194.)

In 1941, PGC added four oil coking ovens for reforming gas and producing metallurgical coke. (NNG409319, -9336.) Coke production ceased in 1953. (Id. at 15.)

In the summer of 1956, the company introduced natural gas into the system. Shortly thereafter, oil-gas manufacturing operations were placed on standby and by-product refining and processing operations ceased. Oil-gas manufacturing operations plant was shutdown in 1958. (NNG409963, -9965.) Shortly thereafter, in 1958, PGC changed its name to Northwest Natural Gas Company. (NNG409454, -9456.)

Northwest Natural Gas Company constructed the company's first LNG storage tank on the Gasco site in 1969. This LNG storage facility is used to liquefy natural gas during times of low peak demand for storage until the gas is needed during times of peak demand, typically during the winter heating season. This made an additional 600 million cubic feet available for peak winter loads. (NNG409172, -9175.) In addition to the LNG storage tank, the company maintains LNG storage control and distribution facilities at the site. No hazardous substances, as that term is defined by CERCLA or ORS 465.200(16), are manufactured, used, stored, released, or otherwise disposed of in LNG storage or natural gas distribution.

To provide a complete response to this Section 104(e) request, NWN would disclose information about pipe pressure, capacity of storage and distribution vessels, and engineering specifications. Such information constitutes critical energy infrastructure information and is exempted from public disclosure pursuant to the FOIA. This information has been made and will remain available to EPA.

NWN also leases portions of its property to industrial tenants. A description of those tenant operations is included in response to requests 6.c. and 11.

- Easements: A response to this Section 104(e) request would disclose information about piping materials, locations, fittings, capacity of storage, distribution vessels, and engineering specifications. Such information constitutes CEII and is exempted from public disclosure pursuant to the FOIA. This information has been made and will remain available to EPA.

21. At each Property, did you ever use, purchase, generate, store, treat, dispose, or otherwise handle any waste, or material? If the Response to the preceding question is anything but an unqualified "no," identify:

a. in general terms, the nature and quantity of the waste or material so transported, used, purchased, generated, stored, treated, disposed, or otherwise handled;

b. the chemical composition, characteristics, physical state (e.g., solid, liquid) of each waste or material so transported, used, purchased, generated, stored, treated, disposed, or otherwise handled;

c. how each such waste or material was used, purchased, generated, stored, treated, transported, disposed or otherwise handled by you;

d. the quantity of each such waste or material used, purchased, generated, stored, treated, transported, disposed or otherwise handled by you; and

e. provide all documentation regarding, but not limited to the following wastes or materials:

i. benzene;

ii. Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX);

iii. carbon pitch;

iv. coal tars;

v. creosote;

vi. hydrocarbons;

vii. lead;

viii. petroleum;

ix. phenols; and

x. Polynuclear Aromatic Hydrocarbons (PAHs).

Response:

NWN objects to this request as overbroad, vague, and ambiguous, especially in its request for all information concerning "materials." NWN has focused its response on information relevant to potential CERCLA response actions.

- Property in Couch's Addition: As a coal and oil gasification plant, PGC, and its predecessor, purchased, stored, and otherwise handled:

    - Raw materials:

      Coal: Initially, coal was the primary raw ingredient at the Portland Gas Manufacturing plant. (NNG409098; NNG409454.) The coal, originally, was brought to the plant by ship from Vancouver Island in bulk. (NNG409454.) The coal was offloaded and stored at a wharf over the Willamette River. Originally, the plant was designed to supply a maximum of 40,000 cubic feet per day of gas (230 therms a day). (Id.) The coal was placed in retorts which carbonized the coal forming the gas. (Id.)

      Crude Oil: The Portland Gas Manufacturing plant converted to the oil gas manufacturing process in approximately 1906. (NNG409098; NNG409454, -9456.) Crude oil was stored in a crude oil tank at Block 5 and used in the oil gas process until the plant ceased operations in 1913. (NNG411777.) NWN has no information regarding the transportation or handling of crude oil.

      Iron Oxide: Iron oxide was stored in the "oxide room" directly east of the purifying room on Block 5. (NNG409003, -008.) Oxide was transported from the oxide shed by conveyor to the primary purifiers. (NNG409098, -9138.)

    - Waste products:

      Lampblack: Lampblack was generated from the oil gas process, which was used during only the last approximately seven years of operations at the Portland Gas Manufacturing plant. (NNG409098; NNG409454, -9456.) Documents indicate that lampblack was initially discarded. (NNG409712.) The location where lampblack was discarded is unknown. Later, lampblack was fed back into

the boilers as fuel. (NNG409712.) The former coal storage shed was used for lampblack storage. (NNG411777.)

Tar: The Portland Gas Manufacturing plant would have generated tar. The precise method of disposal is unknown, but some coal tar was discharged into the river. (NWN0015723.)

Spent oxide: Spent oxide was a waste product of the coal and oil gas purification process. Iron oxide (iron impregnated wood chips) was used to remove sulphides and cyanide from the gas stream. (NNG409098, -9139.) Disposition of spent oxide is unknown.

- Finished Products:

Gas: Annual gas production totaled:

Year	Gas Generated M. Cu. Ft.
1893	74,111
1894	66,275
1895	64,315
1896	60,080
1897	60,355
1898	65,337
1899	71,514
1900	82,527
1901	98,709
1902	126,525
1903	170,884
1904	245,182
1905	370,806
1906	450,132
1907	694,729
1908	858,369
1909	892,595
1910	1,078,369
1911	1,262,312
1912	1,470,447
1913	1,641,341

(NNG409645, -574; NNG410871.)

- East side MGP: No information could be located beyond that provided in previous responses.

- Property near Swan Island: None. The property was undeveloped during PGC's ownership.

- GASCO:

    - LNG Plant

      Raw Material/Finished Product:

      - Natural Gas: The LNG storage facility liquefies natural gas during times of low peak demand for storage until the gas is needed during times of peak demand, typically during the winter heating season.

    - Historical MGP

      The Gasco plant produced manufactured gas by heating oil in a shell containing heated refractory bricks. The Gasco plant operated from 1913 until 1957 and over that time used various raw materials to produce a number of products: manufactured gas, briquettes (compressed lampblack), coke, tar, tar pitch, benzol and numerous light oil products. Unused wastes consisted of process water, spent oxides and residual lampblack.

      Raw Materials:

      - Oil: During the plant's approximate 43-year operational life, approximately 70 million barrels of petroleum feedstock were processed. (Gasco RI, p. 14.) Oil was shipped in and stored in on-site above ground storage tanks. (NNG409086; RI Gasco, Appendix A.) Above ground pipes transported oil from ships to the tanks and from the tanks to the manufactured gas works. (Id.; HAHN000194.)

      - Water: The gas manufacturing process required large volumes of water (in 1940 approximately 3600 gpm were used to produce 22,000 mcf of gas).

      - Iron Oxide: Iron oxide was used in the purification process associated with the manufactured gas.

Wastes:

- Process water: Gas manufacturing operations at Gasco required a large amount of water. Resulting process water contained petroleum emulsions, light oils, tar and lampblack. (Siltronic RI, p. 3.) As utilization of by-products from the gas manufacturing increased, the quantity of emulsions, tars and oils in the process water would have decreased. Between 1913 and 1941, process water was discharged to or placed within low lying areas of the site. During plant expansions in the 1930s and 1940s, two settling ponds for process water were constructed on the southeastern portion of the Gasco site. The ponds began operation in approximately 1941. The purpose of these ponds was to allow the process water to evaporate and heavier components in the process water to settle out, minimizing discharges to the river. See Response to Request for Information #16.

- Spent oxide: Spent oxide (also called purifier box wastes) was generated from the use of iron oxide (iron-impregnated wood chips) as solid reactants for the removal of sulfur from the oil gas. Spent oxide is primarily a blend of iron sulfides, sulfur, iron oxides and wood substrate and/or lime, however spent oxide material may also contain hydrocarbons that passed through the upstream gas processing equipment, as well as cyanides that would be removed from the gas along with the sulfur. In addition to the preceding, spent oxide wastes have been found to contain varying amounts of arsenic, chromium, copper, lead, nickel, and zinc. When PGC ceased MGP operations in 1956, approximately 94,115 cubic yards of spent oxide material were stockpiled at the Gasco facility. The majority of the spent oxide was disposed of at the DEQ-approved Portland City and Scappoose disposal sites. Disposal of the oxide was completed on June 8, 1973. See also Response to Information Request #16.

Finished Products:

- Gas: The Gasco MGP produced an estimated 290 billion cubic feet of gas to serve the greater Portland area and

the Pacific Northwest during its 43 years of operations. (Gasco RI, p. 14.)

- Lampblack Briquettes: Lampblack is recovered from the oil gas manufacturing process. In 1913, PGC began manufacturing lampblack briquettes at the Gasco Facility. (NNG411013, -1018.) Lampblack is a petroleum coke produced in the oil gas manufacturing process. Lampblack was stored in the lampblack storage area, east of the Lampblack Briquette plant and storage shed. (Gasco RI, appendix A.) In 1917, the plant produced approximately 20,000 tons of lampblack briquettes. By 1953, PGC produced approximately 116,000 tons of lampblack briquettes for sale.

- Coke: PGC installed four Knowles Coke ovens in 1941. the ovens produced approximately 14,000 tons of coke per year. (NNG410001, -0003.)

- Tar: Tar was derived from the gasification process. Early on, it was mixed with sawdust and burned as boiler fuel. (NNG409711.) Beginning in 1924, tar produced at the plant was sold as a roadbinder. (NNG411013, -1018.) Starting in 1941, PGC processed the majority of tar into electrode pitch for use in the aluminum industry. (NNG410001, -0003.) Additional distillation of tar produced naphthalene oil and creosote. (NNG410001, -0003.) See Response to Request for Information #16.

- Benzol/light oil products: In 1923, a process for the recovery and refining of benzol from the gas stream commenced. (NNG411013, -1018; NNG410001, -0003.) Initially, the benzol was blended with gasoline and sold as a premium motor fuel. In 1947, PGC began marketing benzol to the chemical industry. (NNG410001, -0003.) This process provides for small quantities of toluol, xylol, and solvent naphtha. The plant was producing nearly 5,000,000 gallons of light oil products annually in 1951. (NNG410001, -0003.)

- Easements: Gas produced in NWN operations was transported to customers through pipelines within easements.

22. **For each Property listed in response to Question 4 above, describe the waste handling and disposal history of the Property(ies), for all facilities and all operations, including but not limited to transportation, shipping and/or receiving, storage, manufacturing, waste containment, and waste disposal facilities in the period being investigated. Please address the following waste handling practices and identify each Property where any of the following practices may have occurred.**

a. the discharge of wastewater from tar stills and unusable petroleum byproducts into the Willamette River,

b. the discharge of any products from gasification operations directly into the Willamette River;

c. the disposal of wastewater from tar stills and unusable petroleum byproducts into settling ponds;

d. the dumping of wastes into waste piles, or burying of waste;

e. the storage of lampblack and spent iron oxide waste in onsite waste piles; and

f. the disposal of creosote and pitch into on-site disposal pits.

Response:

See Responses to Requests for Information #16, 17, 18, and 21.

23. **Describe all activities at each Property that was conducted over, on, or adjacent to, the Willamette River. Include in your description whether the activity involved hazardous substances, waste, or materials and whether any such hazardous substances, waste, or materials were discharged, spilled, disposed of, dropped, or otherwise came to be located in the Willamette River.**

Response:

- Property in Couch's Addition:

  The Portland Gas Manufacturing plant had a wharf over the Willamette River that contained storage sheds for coal. (NNG409564, -565.) The manufactured gas operations took place adjacent to the wharf at Block 5. Coal was unloaded at the wharf/dock and carried by wheelbarrow to the gas plant retorts. (NNG409426, -426.) The company installed a coal hopper on the wharf sometime before 1906. (NNG409003, -008.) In 1897, the company added the water gas manufacturing process, which required the installation of two water gas sets. In 1906, the plant switched to oil-gas manufacturing. The materials, wastes, and byproducts used and generated in these processes included: coal, crude oil, tar, lampblack, and spent oxide. (See Response to Request for Information #21 above.) The

manufactured gas operations took place adjacent to the wharf, with some covered storage areas located at the wharf on the Willamette River. (NNG409098; NNG409564, -565.) Reports from the early 1900s, indicate the discharge of coal tar and other wastes into the Willamette River from the Portland Gas Manufacturing plant. (NWN0015723.)

- East side MGP: None.
- Property near Swan Island: None.
- GASCO:
    - PGC: The pier was one of the first structures at Gasco in 1912. (HAHN00673, -0674.) After dredging and filling of the property by the Port of Portland, much of the building materials and equipment for the construction of the plant was brought in from the river. (Id.) Once MGP operations commenced, oil for manufacturing gas arrived by ship, which offloaded cargo at PGC's pier. (Id.) The petroleum feedstock was pumped to ASTs until needed for MGP operations. (Gasco RI, p. 22.)

      As described above in response to Section 104(e) request 18, two sewer lines from the property discharged at the Willamette River. As described in response to request for information # 16.c.-g., treated overflow from the settling pond discharged to the Willamette river from 1940 until approximately 1951.

    - Shell: In 1915, Shell Oil company, under a lease with PGC to operate on the property, constructed a pier at its leasehold in the southwestern corner of the Elliott tract. (HAHN000402.) Shell handled and transported fuel oil.

    - PacTerm: PacTerm operates a fuel storage and distribution facility at the northern portion of the site. (Gasco RI, p. 13.) PacTerm fuel transfer operations occur at the dock at the Gasco facility. The operation utilizes both barge and truck for transport. (Id.) The Terminal receives, stores, blends, and ships marine fuels and lubricants. (Gasco RI, p. 13.) Between 1999 and 2007, FAMM leased the facility and contracted the operation to Pacific Terminal Services. From 1965 until FAMM leased the area in 1999, the distribution facility had been operated by Pacific Northern Oil.

    - DEQ Investigations: See Response to Information Request # 72.

    - Tar Body Removal: See Response to Request for Information Request # 65.

- Easements: None.

24. **For each Property at which there was or is a mooring facility, dock, wharf or any over-water structure, provide a summary of over-water activities conducted at the structure, including but not limited to, any material loading and unloading operations associated with vessels, materials handling and storage practices, ship berthing and anchoring, ship fueling, and ship building, retrofitting, maintenance, and repair.**

Response:

NWN objects to this request as duplicative. See Response to Request for Information #23.

25. **Describe all activities conducted on leased aquatic lands at each Property. Include in your description whether the activity involved hazardous substances, waste, or materials and whether any such hazardous substances, waste, or materials were discharged, spilled, disposed of, dropped, or otherwise came to be located on such leased aquatic lands.**

Response: NWN is unaware of any leased submerged or submersible lands.

26. **Please describe the years of use, purpose, quantity, and duration of any application of pesticides or herbicides on each Property during the period of investigation (1937 to the present). Provide the brand name of all pesticides or herbicides used.**

Response:

- Property in Couch's Addition: None.
- East side MGP: None.
- Property near Swan Island: None.
- GASCO: NWN uses pesticides and herbicides on an approximately annual basis for vegetation and insect control. Since at least 1976, NWN has had standard practices for the storage, use and disposal of pesticides. Employees must wear proper clothing and protective gear and be, if necessary, appropriately licensed. (NWN 0003921.) The following pesticides have been stored or used at the Gasco property since 1982:
  - Avid 0.15 EC for annual pest control (2004).
  - Banner Max for fungus control (2004).
  - Grenergy for vegetation control (2001).
  - Daconil Ultrex for fungus control (2004).
  - Deltagard insecticide (2004).

- Ranger pro herbicide (2004).
- D-Con for rodent control (2001).
- Oust for pest control (1995).
- Snapshot 2.5 for weed and vegetation control (1995).
- Pramitol herbicide (1982).

NWN has no information regarding pesticide use prior to 1982.

- Easements: None.

27. **Describe how wastes transported off the Property for disposal are and ever were handled, stored, and/or treated prior to transport to the disposal facility.**

Response: See Responses to Requests for Information #17, 21, and 22.

28. **Has Respondent ever arranged for disposal or treatment or arranged for transportation for disposal or treatment of materials to any Property (including the Willamette River) within the Investigation Area? If so, please identify every Property that Respondent's materials were disposed or treated at in the Investigation Area. In addition, identify:**

a. the persons with whom the Respondent made such arrangements;

b. every date on which Respondent made such arrangements;

c. the nature, including the chemical content, characteristics, physical state (e.g., solid, liquid) and quantity (volume and weight) of all materials involved in each such arrangement;

d. in general terms, the nature and quantity of the non- hazardous materials involved in each such arrangement;

e. in general terms, the nature and quantity of any hazardous materials involved in each such arrangement;

f. the owner of the materials involved in each such arrangement, if not Respondent;

g. all tests, analyses, analytical results or manifests concerning each hazardous material involved in such transactions;

h. the address(es) for each Property, precise locations at which each material involved in such transactions actually was disposed or treated;

i. the owner or operator of each facility at which hazardous or non-hazardous materials were arranged to be disposed at within the Investigation Area;

j. who selected the location to which the materials were to be disposed or treated;

k. who selected the Property as the location at which hazardous materials were to be disposed or treated; and

l. any records of such arrangement and each shipment.

Response:

None. The Port of Portland alleges that NWN arranged for waste to be disposed at the oil sump formerly operated by the Port of Portland and Shaver Transportation Company at property currently owned by Evraz Oregon Steel Mills. Oregon Steel Mills v. Port of Portland, Multnomah County Case no. 0201-00718 (filed January 24, 2002). NWN has seen no admissible evidence in support of this allegation.

29. Describe the plants and other buildings or structures where Respondent carried out its operations at each Property within the Investigation Area (excluding locations where ONLY clerical/office work was performed).

Response:

NWN objects to this request as duplicative. See Response to Request for Information #13.a.iv.

30. Provide a schematic diagram or flow chart that fully describes and/or illustrates the Respondent's operations on each Property.

Response:

- Property in Couch's Addition: NWN does not have specific schematic diagrams or flowcharts related to operations at the Portland Gas Manufacturing Site and does not have sufficient information to generate schematic diagrams. Oil gas operations may have been similar to early operations at Gasco.
- East side MGP: None.
- Property near Swan Island: The property was undeveloped at the time of ownership.

- GASCO: Schematic diagrams of the historical MGP operations and byproduct operations are attached.

  Schematic diagrams or flowcharts that illustrate LNG operations constitute critical energy infrastructure information. This information is exempted from public disclosure pursuant to FOIA. NW Natural has provided information for EPA to review regarding LNG operations and will continue to make this information available.

- Easements: NW Natural has numerous pipeline easements through various properties within the investigation area. The workings of the pipelines are CEII. The disclosure of this information is exempt from Freedom of Information Act public disclosure requirements pursuant to 5 U.S.C. § 552(b)(7)(F). NWN has provided, and will continue to make available, information for EPA to review regarding pipeline easements.

31. Provide a brief description of the nature of Respondent's operations at each location on each Property including:

a. the date such operations commenced and concluded; and

b. the types of work performed at each location, including but not limited to the industrial, chemical, or institutional processes undertaken at each location.

Response:

NWN objects to this request as duplicative. See Response to Request for Information #20.

32. If the nature or size of Respondent's operations changed over time, describe those changes and the dates they occurred.

Response: See responses to requests 13 and 20.

33. List the types of raw materials used in Respondent's operations, the products manufactured, recycled, recovered, treated, or otherwise processed in these operations.

Response:

NWN objects to this response as duplicative. See Response to Request for Information #21.

34. **Provide copies of Material Safety Data Sheets (MSDS) for materials used in the Respondent's operations.**

Response: Attached.

35. **Describe the cleaning and maintenance of the equipment and machinery involved in these operations, including but not limited to:**

a. the types of materials used to clean/maintain this equipment/machinery;

b. the monthly or annual quantity of each such material used;

c. the types of materials spilled in Respondent's operations;

d. the materials used to clean up those spills;

e. the methods used to clean up those spills; and

f. where the materials used to clean up those spills were disposed of.

Response:

- Property in Couch's Addition:

  Blocks 5 & 6—NWN has no information describing the cleaning or maintenance of equipment at the Portland Gas Manufacturing Site.

  Block 16—NWN has limited information regarding the former garage property at 2nd Avenue and Flanders Street. The garage accumulated non-halogenated solvent waste from the cleaning of vehicle parts. (NWN0013743, -3745; NWN0015437.) Also, the garage sump, on at least one occasion, accumulated halogenated solvents, benzene and chlordane from unknown sources and required cleanout and disposal. (Id. at -3747; NWN0015437.)

  NWN contracted with Spencer, Inc. for the removal of garage waste. (NWN0004714; NWN0004736-4738.) Garage waste was transported to the Sol Pro facility in Tacoma, Washington. (NWN0004711.)

  No reports of spills at the garage exist. "Spilstoper" drain mats were available to seal drains in the event of a spill at the garage. (NWN0013332.)

- East side MGP: None.

- Property near Swan Island: None. The property was undeveloped at the time of ownership.

- GASCO: NWN has no information describing the cleaning or maintenance of equipment at the historic manufactured gas plant. In 2007, Hahn & Associates completed an Accidental Spill Prevention Plan for the wastewater treatment system which captures and treats certain contaminants from stormwater and contaminated groundwater pumped from the shoreline area groundwater extraction wells. (NWN-LGL005432; NWN0004773.)

- Easements: NWN has Incident Reports describing the maintenance of pipelines within easements. This information is CEII. The public disclosure of this information would reveal sensitive information about pipeline placement, specifications, and operations. NWN has made and will continue to make such information available to EPA.

36. Describe the methods used to clean up spills of liquid or solid materials during Respondent's operation.

Response:

NWN objects to this request as duplicative. See Response to Request for Information #35.

37. For each type of waste (including by-products) from Respondent's operations, including but not limited to all liquids, sludges, and solids, provide the following information:

a. its physical state;

b. its nature and chemical composition;

c. its color;

d. its odor;

e. the approximate monthly and annual volumes of each type of waste (using such measurements as gallons, cubic yards, pounds, etc.); and

f. the dates (beginning & ending) during which each type of waste was produced by Respondent's operations.

Response to Request 37. a-f:

NW Natural objects to the characterization of byproducts as waste. As described herein, NW Natural and its predecessors utilized a large portion of by-products from the gasification operations as raw material for other products for sale. See Response to Request for Information # 20. NWN company records do not include information responsive to this specific inquiry. The answers provided below are based on information, and belief, formed after a reasonable inquiry:

Wastes:

- Wastewater: (a) liquid, (b) a tar/oil/water emulsion, (c) varies, (d) smell is unknown, (e) unknown, and (f) 1913 – 1956.

- Spent oxide: (a) solid, (b) wood chips mixed with lime and possibly bits of tar, (c) oxidizes to Prussian blue, (d) mild moth ball smell, (e) amount unknown, and (f) 1913 – 1956.

By-Product:

- Lampblack: (a) solid residue, (b) granular and hydrophobic, (c) black, (d) and mildly odiferous, (e) unknown, and (f) 1906 – 1956.

- Tar: (a) solid to semi-solid, (b) ductile, (c) black, (d) aromatic, (e) By 1927, the sale of tar for road binder exceeded 1,000,000 gallons per year, and (f) 1913- 1956.

- Benzol: (a) liquid, (b) high benzene content fuel oil, (c) colorless, (d) a sweet gasoline odor, (e) The plant was producing nearly 5,000,000 gallons of light oil products annually in 1951 (NNG410001, -0003), and (f) 1923 – 1956.

38. Provide a schematic diagram that indicates which part of Respondent's operations generated each type of waste, including but not limited to wastes generated by cleaning and maintenance of equipment and machinery and wastes resulting from spills of liquid materials.

Response:

- Property in Couch's Addition: NWN has no schematic diagram or flow-chart that illustrates waste generating operations at the property. NWN does not have sufficient information with which to generate a schematic diagram indicating which part of the gas manufacturing operations generated each type of waste.

- East side MGP: NWN has no schematic diagram or flowchart that illustrates waste generating operations at the property. NWN does not have sufficient information of the waste streams to generate a schematic diagram indicating which part of the gas manufacturing operations generated each type of waste.

- Property near Swan Island: None. The property was undeveloped during the time of ownership.

- GASCO: Schematic diagrams attached at Table 38.

- Easements: None.

39. **Identify all individuals who currently have and those who have had responsibility for Respondent's environmental matters (e.g. responsibility for the disposal, treatment, storage, recycling, or sale of Respondent's wastes). Also provide each individual's job title, duties, dates performing those duties, supervisors for those duties, current position or the date of the individual's resignation, and the nature of the information possessed by such individuals concerning Respondent's waste management.**

Response: NWN can provide only partial information in response to this request. Less information is available for past employees than for present employees; generally, the further an employee's service is in the past, less information is available concerning the employee's service.

Current:

Mark Dodson

- President and Chief Executive Officer (January 1, 2003 to present)
  - Overall responsibility for running the Company
  - General knowledge of environmental matters of the Company
- President and COO (May 23, 2001 to January 1, 2003)
  - Overall responsibility for running the Company
- Senior Vice President Public Policy and General Counsel (March 1, 1998 to May 23, 2001)
  - Officer with primary responsibility for NW Natural's environmental matters

Gregg S. Kantor, President and Chief Operating Officer

- Officer with primary responsibility for NW Natural's environmental matters (January 2005 to May 2005)
- Will have overall responsibility for running the Company as of January 1, 2009 as new CEO.
- General knowledge of environmental matters of the Company

Margaret D. Kirkpatrick, Vice President and General Counsel (June 15, 2005 to present)

- Oversees environmental matters for NW Natural, including the Portland Harbor Superfund Site and the Gasco site. Oversees NW Natural's environmental team, including NW Natural employees, consultants and lawyers.
- Reports to Mark Dodson
- Knowledge of environmental matters of the Company, including response actions at Gasco and the Portland Harbor.

Sandra K. Hart, Director, Risk, Environment and Land (1988 to present)

- Responsible for environmental compliance
- Supervisors:
  - Margaret D. Kirkpatrick (June 15, 2005 to present)
  - Gregg S. Kantor (January 02, 2005 to June 15, 2005)
  - Beth Ugoretz, (December 06, 2002 to January 02, 2005)
  - Mark Dodson (March 1, 1998 to December 06, 2002)
  - Bruce Sampson (January 1994 to March 1, 1998)
  - Dwayne Foley (April 1, 1993 to approximately January 1994)
  - Jack Mills (1988 to April 1, 1993)

- Knowledge of environmental matters of the Company, including response actions at Gasco and the Portland Harbor.

Robert Wyatt, Environmental Compliance Specialist (2000 to present)

- Responsible for response actions at Gasco, Portland Harbor and other sites.
- Supervisors
  - Margaret D. Kirkpatrick (2007 to present)
  - Sandra K. Hart (2000 to 2007)
- Knowledge of response actions taken and planned at Gasco, Portland Harbor and within the Investigation Area.

Michael Hayward, Environmental Specialist.

- Knowledge of some environmental matters of the Company, including some issues at Gasco.
- Supervisor
  - Sandra K. Hart
- Responsible for maintaining and enhancing NW Natural's environmental programs. Assesses, investigates, and directs the cleaning up of hazardous substances sites and ensures work activities adhere to federal, state, and local environmental requirements.

Todd Jones, Environmental Consultant, II.

- Knowledge of some environmental matters of the Company, including some issues at Gasco.
- Supervisor
  - Sandra K. Hart
  - Michael Hayward
- Responsible for maintaining and enhancing NW Natural's environmental programs. Assesses, investigates, and directs the cleaning up of hazardous substances sites and ensures work activities adhere to federal, state, and local environmental requirements.

Jeff Payson, Environmental Consultant I

- Knowledge of some environmental matters of the Company, including some issues at Gasco.
- Supervisor
  - Sandra K. Hart
  - Michael Hayward
- Responsible for maintaining and enhancing NW Natural's environmental programs. Assesses, investigates, and directs the cleaning up of hazardous substances sites and ensures work activities adhere to federal, state, and local environmental requirements.

Former:

Beth Ugoretz, Senior Vice President and General Counsel (December 06, 2002 to January 02, 2005)

- Officer with primary responsibility for NW Natural's environmental matters
- General knowledge of environmental matters of the Company

Bruce Samson, Sr. Vice President, Public Policy and General Counsel (retired March 1, 1998)

- Officer with primary responsibility for NW Natural's environmental matters
- General knowledge of environmental matters of the Company

Dwayne Foley, Senior Vice President (retired approximately 1995)

- Officer with primary responsibility for NW Natural's environmental matters
- General knowledge of environmental matters of the Company

Jack Mills, Manager, Engineering Department (retired April 1, 1993)

Ed Bolin, Manager, Land and Claims Department (prior to approximately 1988; retired October 1, 1989)

- Responsible for Doane Lake issues, possibly additional environmental matters

- Supervisor was Bruce DeBolt

1970s-1980s:

W.T. Amies.

Michael S. McCoy, Vice President-Operations.

W.L. Gibbs, Vice President, Engineering Department.

1930s-1960s:

Eldon H. May, mechanical engineer.

J.F. Bell, Vice President.

D.B. Larson.

Patrick B. O'Rourke, Operating Manager.

Lawrence R. Mack, Superintendent, By-Products Production.

W.A. Yedd.

A.M. McKelligon.

40. For each type of waste describe Respondent's contracts, agreements, or other arrangements for its disposal, treatment, or recycling.

Response:

Waste:

- Spent oxide: See Response to Request for Information #17.
- Wastewater: See Response to Request for Information #17.
- Investigation Derived Waste (IDW): NWN disposes of IDW on a case-by-case basis. NWN has utilized TPS Technologies to facilitate disposal.

By-product:

- Lampblack: See Response to Request for Information #17.

- Tar: See Response to Request for Information #17.

- Benzene: After processing, benzol and other derivatives of the light oil recovery and refining process were sold.

Company records illustrate additional disposal activities from the properties as set forth in the table below:

- Property in Couch's Addition:

DATE	TRANSPORTER	DISPOSAL SITE	QUANTITY OF WASTE	NATURE OF WASTE
3/30/1995	Burlington Environmental	Burlington Environmental - Treatment, Storage and Disposal Facility	30 55-gal drums	Alkaline Solutions, Oil and Grease, Sludge
2/3/1998	Enviro-Comp Services	Metro Central Station Recycling and Transfer Services 6161 NW 61st Portland, OR 97210	Unknown	Unused Waste from Print Shop
00/00/0000	Unknown	Cameron-Yakima Inc. 1414 S First St. Yakima, WA 98901	1,200 lbs.	Unknown
5/1/1992	Spencer Inc.	Marine Shale Processors HWY 90 East Morgan City, LA 70380	110 gallons	Hazardous Waste, Liquid - Chlordane, Benzene
5/15/1992	Spencer Inc.	Marine Shale Processors HWY 90 East Morgan City, LA 70380	Unknown	Sump Sludge
3/12/1993	Spencer Inc.	Marine Shale Processors HWY 90 East Morgan City, LA 70380	10 gallons	Hazardous, Waste, Liquid - Chlorobenzene, Benzene
3/31/1993	Spencer Inc.	Marine Shale Processors HWY 90 East Morgan City, LA 70380	Unknown	Sump Sludge
7/22/1993	Spencer Inc.	Sol Pro 1825 Alexander Rd. Tacoma, WA	20 gallons	Waste Flammable Liquid - Xylene

DATE	TRANSPORTER	DISPOSAL SITE	QUANTITY OF WASTE	NATURE OF WASTE
		98421		
11/11/1994	Spencer Inc.	Northwest Enviroservice Inc. 1500 Airport Way South Seattle, WA 98134	165 gallons	Flammable Liquid Waste - Benzene
4/29/1996	Spencer Inc.	Marine Shale Processors HWY 90 East Morgan City, LA 70380	110 gallons	Hazardous Waste, Liquid - Chlordane, Benzene
00/00/0000	Spencer Inc.	Sol Pro 1825 Alexander Rd. Tacoma, WA 98421	Unknown	Solvent
10/31/0000	Spencer Inc.	Marine Shale Processors HWY 90 East Morgan City, LA 70380	10 gallons	Liquid Hazardous Waste
11/5/1990	Spencer Inc.	Sol Pro 1825 Alexander Rd. Tacoma, WA 98421	495 gallons	Waste Oil, N.O.S., Combustible Liquid (Xylene, Methylene, Chloride, Waste Oil)
11/5/1990	Unknown	Sol Pro 1825 Alexander Rd. Tacoma, WA 98421	4,128 lbs	Halogenated Solvents and Still Bottoms
4/13/1992	Unknown	Sol Pro 1825 Alexander Road Tacoma, WA 98421	20 gallons	RQ, Waste Combustible Liquid, N.O.S. (Xylene, Toluene)
4/29/1992	Unknown	Marine Shale Processors, Inc. Highway 90 East Morgan City, LA 70380	110 gallons	RQ, Hazardous Waste Liquid, N.O.S.(Chlordane, Benzene)
4/29/1992	Unknown	Marine Shale Processors Inc. Highway 90 East Morgan City, LA 70380	110 gallons	RQ Hazardous Waste Liquid, N.O.S. (Chlordane, Benzene)
5/13/1992	Unknown	Sol Pro 1825 Alexander Rd. Tacoma, WA 98421	2 20 gallon drums	RQ, Waste Combustible Liquid, N.O.S. (Xylene, Toluene)

DATE	TRANSPORTER	DISPOSAL SITE	QUANTITY OF WASTE	NATURE OF WASTE
12/20/1994	Northwest Enviroservice Inc. 1500 Airport Way South Seattle, WA 98134	Unknown	165 gallons	RQ, Waste Flammable Liquid, N.O.S. (Benzene)
00/00/0000	Unknown	Marine Shale Processors HWY 90 East Morgan City, LA 70380	10 gallons	RQ, Hazardous Waste, Liquid, N.O.S. (Chlorobenzene, Benzene)
00/00/0000	Unknown	Marine Shale Processors, Inc. Highway 90 East Morgan City, LA 70380	110 gallons	RQ, Hazardous Waste Liquid, N.O.S.(Chlordane, Benzene)
00/00/0000	Spencer Inc.	Marine Shale Processors, Inc. Highway 90 East Morgan City, LA 70380	110 gallons	RQ, Hazardous Waste Liquid, N.O.S.(Chlordane, Benzene)

- GASCO:

DATE	TRANSPORTER	DISPOSAL SITE	QUANTITY OF WASTE	NATURE OF WASTE
3/7/1968	E.S. Ritter Company, Inc. 4952 Portland Road NE Salem, OR 97303	Unknown	Unknown	Steel and Concrete Structures, Tanks, and Piping
3/17/1994	Lincoln Cristi Inc. 600 SE Maritime Avenue #330 Vancouver, WA 98661	Hillsboro Landfill 3205 SE Minter Bridge Rd. Hillsboro, OR 97123	8 cubic yards	Boiler Insulation
3/19/1994	Lincoln Cristi, Inc., 600 SE Maritime Ave, Vancouver, WA 98123	Hillsboro Landfill 3205 SE Minter Bridge Rd. Hillsboro, OR 97123	8 cubic yards	Boiler Insulation – Asbestos
3/27/1995	MSP	Unknown	Unknown	Spent Activated Carbon, Water
7/14/1995	Burlington Environmental	Philip Environmental 1701 E. Alexander Ave. Tacoma, WA 98421	70 lbs.	Flammable Liquids, Hazardous Liquids - Benzene, Gasoline, Acetone

DATE	TRANSPORTER	DISPOSAL SITE	QUANTITY OF WASTE	NATURE OF WASTE
8/25/1997	Burlington Environmental	Unknown	6 drums	Material Not Regulated by DOT, Potassium Nitrate, Chlorate and Borate Mixtures, Paint Waste
11/25/1997	Eltex Environmental	Michigan Disposal Waste Treatment Plant 49350 N. I-94 Service Drive Belleville, MI 48111	7,120 lbs.	RQ, Environmentally Hazardous Substance, Solid, N.O.S. (Benzene, Soil)
11/26/1997	Environmental Quality Company	Michigan Disposal Waste Treatment Plant 49350 N. I-94 Service Drive Belleville, MI 48111	39,873 lbs.	RQ, Environmentally Hazardous Substance, Solid, N.O.S. (Benzene, Soil)
12/9/1997	Unknown	TPST Soil Recyclers of Oregon 9333 N Harborgate Street Portland, OR 97203	48drums	Petroleum Contaminated Soil
3/12/1998	Unknown	TPST Soil Recyclers of Oregon 9333 N Harborgate Street Portland, OR 97203	26,380 lbs.	Petroleum Contaminated Soil
3/12/1998	Unknown	TPST Soil Recyclers of Oregon 9333 N Harborgate Street Portland, OR 97203	25,440 lbs.	Petroleum Contaminated Soil
3/12/1998	Unknown	TPST Soil Recyclers of Oregon 9333 N Harborgate Street Portland, OR 97203	21,300 lbs	Unknown
3/13/1998	Unknown	Michigan Disposal Waste Treatment Plant 49350 N I-94 Service Drive Belleville, MI	Unknown	RQ, Environmentally Hazardous Substance, Solid, N.O.S. (Benzene, Soil)

DATE	TRANSPORTER	DISPOSAL SITE	QUANTITY OF WASTE	NATURE OF WASTE
		48111		
3/13/1998	Eltex Chemical	Michigan Disposal Waste Treatment Plant 49350 N I-94 Service Dr. Belleville, MI 48111	10,000 lbs.	Soil Contaminated With Benzene
3/18/1998	Unknown	TPST Soil Recyclers of Oregon 9333 N. Harborgate Street Portland, OR 97203	60.85 tons	Petroleum Contaminated Soil
12/30/1998	Unknown	Burlington Environmental Inc. 734 South Lucile Street Seattle, WA 98108	200 lbs.	Hazardous Waste, Liquid, N.O.S. (Benzene)
1/15/1999	West Coast Marine Cleaning	TPST Soil Recyclers 9333 N Harborgate St. Portland, OR 97203	35.4 tons	Non-Hazardous Soil
9/22/1999	Environmental Quality Company	Michigan Disposal Waste Treatment Plant 49350 N I-94 Service Dr. Belleville, MI 48111	13,400 lbs.	Solid Hazardous Waste – Benzene
9/23/1999	Environmental Quality Company	Michigan Disposal Waste Treatment Plant 49350 N I-94 Service Dr. Belleville, MI 48111	30 drums	Dirt, Gas
1/27/2000	Philip Environmental	Burlington Environmental - Georgetown Facility	200 lbs.	Diesel Fuel Tank Waste
5/2/2000	ADT Environmental Solutions	Unknown	Unknown	Unknown

DATE	TRANSPORTER	DISPOSAL SITE	QUANTITY OF WASTE	NATURE OF WASTE
6/14/2000	Advanced Disposal Technologies, Inc. 1210 NE Oregon Street Sherwood, OR 97140	Class C Landfill	55 gallon drum	Water and PPE
6/24/2000	West Coast Maring	TPST Soil Recyclers of Oregon 9333 N Harborgate Street Portland, OR 97203	9.85 tons	Non-Hazardous soil
8/9/2000	Unknown	Burlington Environmental Inc. 20245 77th Avenue, South Kent, WA 98032	Unknown	Unknown
11/3/2000	Stayton Environmental	TPST Soil Recyclers of Oregon 9333 N Harborgate Street Portland, OR 97203	4.95 tons	Non-Hazardous Soil
2/6/2002	Unknown	Stayton Environmental	6 55 gallon drums	Contaminated Soil
10/31/2002	West Coast Marine Cleaning, Inc. 455 C Street Washougal,WA 98671	Marion County Soil Recycling Facility	Estimated 10-15 tons	Soil
1/28/2003	Spencer Environmental	Spencer Environmental 6400 SE 101st Avenue, Portland, OR 97266	467 gallons	Fuel product for Reclamation
6/15/2005	Waste Management	Chemical Waste Management, Arlington, OR 97812	15,000 cubic yards	Multilayer, Silt and Sand, Organic Contaminants
6/24/2005	Chemical Waste Management 17629 Cedar Springs Lane Arlington, OR 97812	Unknown	Estimated 15,000 cubic yards	Contaminated Sediment

DATE	TRANSPORTER	DISPOSAL SITE	QUANTITY OF WASTE	NATURE OF WASTE
8/4/2005	Waste Management	C Landfill Arlington, OR 97812	Unknown	Dredged Sediment
9/14/2005	CWMNW, Inc.	CWMNW, Inc. 17629 Cedar Springs Lane Arlington, OR 97812	68,300 P	Contaminated Sediment, Solid Waste, Other Regulated Substances
7/27/2007	Sevenson Environmental Services, Inc. 2749 Lockport Rd. Niagara Falls, NY 14305	Unknown	Unknown	Unknown
1/22/2008	Waste Management	RCRA Subtitle D Non-Hazardous Waste Disposal Facility Hillsboro, OR 97123	Five 55-gallon drums, two 10-cubic-yard boxes, ten 55-gallon drums	Soil Cuttings
00/00/0000	Unknown	Cameron-Yakima, Inc. 1414 S. First St. Yakima, WA 98901	12,000 lbs.	Hazardous Waste Solid, N.O.S.
11/00/1994	Northwestern Carbon	Red Bluff Facility	10,000 lbs.	GAC
12/00/2005	Unknown	Waste Management	Unknown	Contaminated sediment
1/25/2007 to 1/31/2007	Waste Management	RCRA Subtitle D Non-Hazardous Waste Disposal Facility, McMinville, OR 97312	3,196 tons	Non-Hazardous Contaminated Soil
1/31/2007	Waste Management	Chemical Waste Management Subtitle C Landfill, Arlington, Oregon 97312	161 tons	Non-Hazardous Contaminated Soil

- Easements:

DATE	TRANSPORTER	DISPOSAL SITE	QUANTITY OF WASTE	NATURE OF WASTE
6/22/2001	TPS Technologies	TPS Soil Recycling Facility	745.74 tons	Non-Hazardous Contaminated Soil
8/31/2001	Unknown	TPST Soil Recyclers of Oregon 9333 N Harborgate	82 tons	Non-Hazardous Contaminated Soil

DATE	TRANSPORTER	DISPOSAL SITE	QUANTITY OF WASTE	NATURE OF WASTE
		Street Portland, OR 97203		
9/13/2001	Unknown	TPST Soil Recyclers of Oregon 9333 N Harborgate Street Portland, OR 97203	20.48 tons	Non-Hazardous Contaminated Soil
9/28/2001	Unknown	TPST Soil Recyclers of Oregon 9333 N Harborgate Street Portland, OR 97203	33.49 tons	Non-Hazardous Contaminated Soil
5/4/1992	Unknown	Unknown	110 gallons	RQ, Waste Combustible Liquid, N.O.S. (Xylene, Toluene)
5/12/1994	D.M. Recycling	Cameron-Yakima Inc., 1414 S First St., Yakima, WA 98901	12,000 lbs.	Solid Hazardous Waste – Benzene
4/20/1995	Resource Recovery	Philip Environmental 1701 E Alexander Ave. Tacoma, WA 98421	55 gallon drum	Non-RCRA Waste Liquid
10/15/1996	Unknown	Sanifill Solutions 3205 SE Minter Bridge Road Hillsboro, OR 97123	Unknown	Asbestos
9/23/1999	The Environmental Quality Company 49350 N I-94 Service Drive Belleville, MI 48111	Michigan Disposal Waste Treatment Plant 49350 N I-94 Service Drive Belleville, MI 48111	18,400 lbs.	RQ Hazardous Waste Solid N.O.S. (Benzene)
10/12/1999	Unknown	Michigan Disposal Waste Treatment Plant 49350 N I-94 Service Drive Belleville, MI 48111	Unknown	Benzene Soil
2/12/2001	Unknown	Environmental Products NW	17,000 lbs.	Spent Granular Activated Carbon
7/31/2001	Burlington Environmental	Kent, WA Facility	Unknown	Solid
00/00/0000	Unknown	Cameron-Yakima,	12,000 lbs.	Hazardous Waste Solid,

DATE	TRANSPORTER	DISPOSAL SITE	QUANTITY OF WASTE	NATURE OF WASTE
		Inc. 1414 S. First Street, Yakima, WA 98901		N.O.S.

41. Provide copies of such contracts and other documents reflecting such agreements or arrangements:

a. state where Respondent sent each type of its waste for disposal, treatment, or recycling;

b. identify all entities and individuals who picked up waste from Respondent or who otherwise transported the waste away from Respondent's operations (these companies and individuals shall be called "Waste Carriers" for purposes of this Information Request);

c. if Respondent transported any of its wastes away from its operations, please so indicate;

d. for each type of waste specify which Waste Carrier picked it up;

e. indicate the ultimate disposal/recycling/treatment location for each type of waste;

f. provide all documents indicating the ultimate disposal/recycling/treatment location for each type of waste; and

g. state the basis for and provide any documents supporting the Response to the previous question.

Response:

See Response to Request for Information # 39 and 40 and the documents attached.

42. Describe all wastes disposed by Respondent into Respondent's drains including but not limited to:

a. the nature and chemical composition of each type of waste;

b. the dates on which those wastes were disposed;

c. the approximate quantity of those wastes disposed by month and year;

d. the location to which these wastes drained (e.g. septic system or storage tank at the Property, pre-treatment plant, Publicly Owned Treatment Works (POTW), etc.); and

e. whether and what pretreatment was provided.

Response:

- Property in Couch's Addition: None. NWN records do indicate that contaminants were caught in a sump at the property and removed.
- East side MGP: None.
- Property near Swan Island: The property was undeveloped at the time of ownership. None.
- GASCO: Discharge of treated water (groundwater from the LNG containment basin) to the City of Portland sanitary sewer was initiated on March 16, 2007, under Temporary Wastewater Discharge Permit 500.022 (expires September 15, 2009). See Response to Request for Information #67.
- Easements: None.

43. Identify any sewage authority or treatment works to which Respondent's waste was sent.

Response:

- Property in Couch's Addition: On information and belief, NWN's sewage from its offices drains to the City of Portland treatment works.
- East side MGP: None.
- Property near Swan Island: None.
- GASCO: Sewage from the Gasco facility, as well as treated groundwater, is discharged to the City of Portland treatment works.
- Easements: None.

44. Describe all settling tank, septic system, or pretreatment system sludges or other treatment wastes resulting from Respondent's operations.

Response:

- Property in (b) (6) Addition: None.
- East side MGP: None.
- Property near Swan Island: None. The property was undeveloped at the time of ownership.
- GASCO:

  Activated Carbon Filtration System: Stormwater as well as groundwater from the surficial fill water-bearing zone that seeps into the centrally-located LNG containment basin is pumped and treated in a granular activated carbon ("GAC") treatment system prior to discharge to the City of Portland POTW.

- Easements: None.

45. **If applicable, describe the facilities, processes and methods Respondent or Respondent's contractor used, and activities engaged in, either currently or in the past, related to ship building, retrofitting, maintenance or repair, including, but not limited to, dry-docking operations, tank cleaning, painting and re-powering.**

Response: N/A

46. **Describe any hazardous substances, wastes, or materials used or generated by the activities described in response to the previous Question and how these hazardous substances, materials and wastes were released or disposed of.**

Response: N/A

47. **Provide copies of any records you have in your possession, custody or control relative to the activities described in response to the previous two Questions.**

Response: N/A

48. **Describe any process or activity conducted on a Property identified in response to Question 4 involving the acquisition, manufacture, use, storage, handling, disposal or release or threatened release of polychlorinated biphenyl(s) ("PCB(s)" or PCB(s)-containing materials or liquids.**

Response: N/A

49. For each process or activity identified in response to the previous Question, describe the dates and duration of the activity or process and the quantity and type of PCB(s) or PCB(s) containing materials or liquids.

Response: N/A

50. For each process or activity identified in response to the previous two Questions, identify the location of the process or activity on the Property.

a. If production wastes, including floor sweepings, have been disposed in landfills on any of the Property(ies) listed in response to Question 4 above, provide a map marked with the location of any or all such landfill locations, list the chemicals or other items dumped at each location, and give the dates each location was utilized as a landfill by Respondent or any other company.

b. If the manufacturing processes used on any of the Property(ies) listed in response to Question 4 above involve the utilization of rinse water, give a description of the equipment and transport mechanisms used to segregate hazardous substances from the water before it is discharged into the Willamette River. Describe the composition of any sludge material recovered from the cleanup processes of such rinse waters; give the means used to transport these sludges to disposal points and list all disposal locations.

Response to request 50. a-b:

NWN interprets the subparts of this question in the context of the question itself. N/A

Section 5.0 Regulatory Information

51. Identify all federal, state and local authorities that regulated the owner or operator of each Property and/or that interacted with the owner or operator of each Property. Your response is to address all interactions and in particular all contacts from agencies/departments that dealt with health and safety issues and environmental concerns.

Response:

- Property in Couch's Addition: The Portland Gas Manufacturing plant ceased operations in 1913. NWN has no information regarding interactions with state agencies or departments dealing with health and safety issues or environmental concerns at the Portland Gas Manufacturing plant during its operations.

  Presently, NW Natural is negotiating an administrative consent order with Oregon DEQ to investigate whether the Portland Gas Manufacturing site is an ongoing source of contamination to the Willamette River.

- East side MGP: The east side MGP ceased operations in 1892. NWN has no information regarding interactions with state agencies or departments dealing with health and safety issues or environmental concerns at the East side MGP during its operations.

- Property near Swan Island: The property was undeveloped at the time of ownership. NWN has no information that any federal, state or local authorities regulated or interacted with PGC related to health and safety issues and environmental concerns.

- GASCO: NWN has had too many interactions with government agencies to list individually. NWN has interacted with the following government agencies regarding the Gasco site:

  - United States Environmental Protection Agency. See Response to Request for Information ## 40, 57, 65, 67, 72, 73, and 74.
  - United States Army Corp of Engineers. See Response to Request for Information # 52, 63, and 65.
  - National Oceanic and Atmospheric Administration Fisheries, National Marine Fisheries Association. See Response to Request for Information ## 57 and 65.
  - Department of Transportation, United States Coast Guard. See Response to Request for Information ## 52 and 63.
  - Oregon Department of Environmental Quality (formerly, Oregon State Sanitary Authority). See Response to Request for Information ##10.e, 13.g, 13.h, 16, 17, 40, 52, 53, 54, 58, 63, 65, 67, 73, and 74.
  - Pipeline and Hazardous Material Safety Administration ("PHMSA"). The PHMSA conducts regular inspections of NWN's pipeline facilities.
  - Oregon Public Utility Commission ("OPUC"). The OPUC regulates utilities in the state of Oregon, including NWN. The OPUC sets performance standards and conducts inspections of NWN facilities to ensure compliance with safety standards.
  - City of Portland Bureau of Environmental Services. See Response to Request for Information ## 53 and 67.

- Portland Harbor Patrol. See Response to Request for Information ## 52 and 63.
- Fire Department (City of Portland). See Response to Request for Information ##52 and 58.

- Easements: The pipelines in the easements are regulated by the Oregon Public Utility Commission ("OPUC") and the Pipeline and Hazardous Materials Safety Administration ("PHMSA").

52. Describe all occurrences associated with violations, citations, deficiencies, and/or accidents concerning each Property during the period being investigated related to health and safety issues and/or environmental concerns. Provide copies of all documents associated with each occurrence described.

Response:

- Property in Couch's Addition: None.
- East side MGP: None.
- Property near Swan Island: None. The property was undeveloped at the time of ownership.
- GASCO:
  - In October 1939, the U.S. Coast Guard and Portland Harbor Patrol investigated the source of oil pollution on the Willamette river. After inspecting the Gasco facility, including the process water overflow tank and separating sump, the U.S. Coast Guard and Portland Harbor Patrol determined that the Gasco facility was not the source of oil on the river. (HAHN00352.)
  - High water in the Willamette in 1948 and 1965 led to flooding along the banks of the Willamette, including flooding of the Gasco facility. Residue lampblack, stored spent oxide, and tar and wastewater in the settling ponds were released to the river during the floods. (Gasco RI, Appendix A.)
  - In April or May of 1950, NWN received complaints from the Harbor Patrol (City of Portland) regarding oil in the river overflowing from settling ponds. (NNG408967.) The alleged release involved oil which rose to the surface. The Oregon State Sanitary Authority complained to PGC on May 12, 1950 of river pollution from Gasco plant. (NNG408967, NNG408961.)

- A February 13, 1952 complaint by Corps of Engineers about additional oil coming from PGC south sewer. (NNG408939.) On July 21, 1971 Coast Guard filed a water pollution report regarding heavy oil and tar pollution on the west bank of the Willamette River one mile south of the St. Johns Bridge.

- On February 24, 1956, a fire broke out at the Gasco MGP. The fire grew quickly due to escaping heavy fuel oil. (NNG411595.) Reports of the fire do not detail spills or releases, but it is likely that some materials were released, spilled, discharged, or leaked during the fire and its aftermath.

- In March of 2000, during well abandonment activity on site, a subcontractor, West Coast Marine Cleaning, inadvertently discharged a small volume of drilling fluid to the river without receiving treatment. (NWN0003371.) NWN was cited for untreated wastewater discharge in violation of its NPDES permit on or about March 31, 2000.

- In September 2006, EPA sent a demand for payment of stipulated penalties to NWN. EPA issued the penalty because of NWN's consultants inability to submit water quality monitoring data to EPA within 72 hours as required by the removal action design documents. The matter was resolved by settlement. (NWN0015566; NWN015569.)

- Easements: None.

53. Provide a list of all local, state and federal environmental permits ever issued to the owner or operator on each Property (e.g., RCRA permits, NPDES permits, etc.). Please provide a copy of each federal and state permit, and the applications for each permit, ever issued to the owner or operator on each Property

Response:

- Property in Couch's Addition:

  Block 24: Application for permit from Portland Fire Bureau to decommission a heating oil tank under a city sidewalk. (NWN0015404.)

- East side MGP: None.

- Property near Swan Island: None.

- GASCO: The following permits have been issued to NWN at the Gasco facility:

  - Permit # 500.022, for discharge of treated groundwater to City of Portland Treatment Works, Industrial Wastewater Discharge Permit, (2007-2009).

- 100-J NPDES permit, Oregon DEQ, for discharge of non-contact cooling water:
  - Issued 08/28/1996 (amended 10/18/1996), expiration 07/31/2001. (NWN0002725, NWN0003531, NWN0004280, 4281, 4282.)
  - Issued 12/20/1990, expiration 12/31/1995. (NWN0004595, NWN 0004188.)
  - Issued 12/17/85, expiration 12/31/1990. (NWN0006708.)
- 1964-J Waste Discharge Permit, Oregon DEQ, Issued 03/13/75, expiration 10/31/1979, for discharging cooling waters and treated storm waters into Willamette River.
- Waste Discharge permit number 915, Oregon DEQ, approximately 1971, relating to discharges from tar ponds during closure. (NWN0006594.)[1]
- 1500-A NPDES permits, Oregon DEQ for discharge of water contaminated with petroleum hydrocarbons from groundwater or surface water cleanup operations. The 1500-A permit has expired. NW Natural now discharges to the City of Portland Treatment Works pursuant to its Permit # 500.022.
  - Issued 8/22/2000, expiration 6/30/2005. (Permit NWN 0002823; application, 4/27/2000, NWN0003374.)
  - Issued 7/24/1995, expiration 6/30/2000. (NWN 0007116.)
- 1500-J NPDES permit, Oregon DEQ, issued 11/06/89, expiration 7/31/1994, for discharge of water contaminated with petroleum hydrocarbons from groundwater and surface water cleanup operations. (General Permit, National Pollutant Discharge Elimination, 06/06/1989, NWN0007094.)
- City of Portland Fire Marshall's permit number T981399, Issued 11/03/1998 (for removal of UST). (Underground Storage Tank Decommissioning Report: Former Garage Area, 04/05/1999, NNG405119.)

[1] NWN has no copy of this permit; the referenced document is a letter responding to DEQ requests related to eliminating the remaining tar ponds.

- Permit to install proposed fill for synthetic natural gas plant, and possible FERC issues (the synthetic NGP was cancelled by FERC). (HAHN00295.)

- Temporary Use Permit for Remedial Work, Permit #37183-TU, Oregon DSL, issued 10/6/2006, expiration 10/3/2008. (Re: DSL Temporary Use Permit to Conduct Remedial Work, 10/10/2006, NWN0007455.)

- Easements: None.

54. Did the owner or operator ever file a Hazardous Waste Activity Notification under the RCRA? If so, provide a copy of such notification.

Response:

- Property in Couch's Addition: NWN filed a Notification of Hazardous Waste Activity with Oregon DEQ for the garage at Block 16. (NWN0013056.)

- East side MGP: N/A

- Property near Swan Island: N/A

- GASCO: NW Natural filed a Notification of Hazardous Waste Activity with Oregon DEQ. (NWN0007197.)

- Easements: None.

55. Did the owner or operator's facility on each Property ever have "interim status" under the RCRA? If so, and the facility does not currently have interim status; describe the circumstances under which the facility lost interim status.

Response: No.

56. Provide all RCRA Identification Numbers issued to Respondent by EPA or a state for Respondent's operations.

Response: RCRA ID # OR0000204701.

EPA ID # ORD987184942.

57. Identify all federal offices to which Respondent has sent or filed hazardous substance or hazardous waste information. State the years during which such information was sent/filed.

Response: Federal Agencies:

- U.S. Department of Transportation, Pipeline and Hazardous Material Safety Administration (through present).
- U.S. Environmental Protection Agency (2004 – present).
- U.S. Department of Commerce, National Oceanic and Atmospheric Administration (2005 – present).

58. Identify all state offices to which Respondent has sent or filed hazardous substance or hazardous waste information. State the years during which such information was sent/filed.

Response: State Agencies:

- Oregon Department of Environmental Quality (1996 - 2007).
- Oregon Public Utilities Commission (through present).
- Oregon Fire Marshal, Hazardous Material Coordinators Division (1988 – 1998).
- Oregon Department of Revenue (1989-2007).

59. List all federal and state environmental laws and regulations under which Respondent has reported to federal or state governments, including but not limited to: Toxic Substances Control Act, 15 U.S.C. Sections 2601 et seq., (TSCA); Emergency Planning and Community Right-to-Know Act, 42 U.S.C. Sections 1101 et seq., (EPCRA); and the Clean Water Act (the Water Pollution Prevention and Control Act), 33 U.S.C. Sections 1251 et seq., Oregon Hazardous Substance Remedial Action Law, ORS 465.315, Oregon Water Quality law, ORS Chapter 468(b), Oregon Hazardous Waste and Hazardous Materials law, ORS Chapters 465 and 466, or Oregon Solid Waste law, ORS Chapter 459. Provide copies of each report made, or if only oral reporting was required, identify the federal and state offices to which such report was made.

Response:

Federal: RCRA, CERCLA, EPCRA, The Water Pollution Prevention and Control Act (Clean Water Act).

State: Oregon Hazardous Substances Remedial Action Statutes, Oregon Hazardous Waste and Hazardous Materials law, Oregon Community Right to Know and Protection Act.

60. **Provide a copy of any registrations, notifications, inspections or reports required by the Toxic Substances Control Act, 15 USC § 2601 et seq., or state law, to be maintained or submitted to any government agency, including fire marshal(s), relating to PCB(s) or PCB(s) containing materials or liquids on any Property identified in response to Question 4.**

Response: None.

61. **Has Respondent or Respondent's contractors, lessees, tenants, or agents ever contacted, provided notice to, or made a report to the Oregon Department of State Lands ("DSL") or any other state agency concerning an incident, accident, spill, release, or other event involving Respondent's leased state aquatic lands? If so, describe each incident, accident, spill, release, or other event and provide copies of all communications between Respondent or its agents and DSL or the other state agency and all documents that were exchanged between Respondent, its agents and DSL or other state agency.**

Response:

- Property in Couch's Addition: None.
- East side MGP: None.
- Property near Swan Island: None.
- GASCO: None. NWN has no information indicating that the State of Oregon has issued a lease for submerged or submersible lands at this location.
- Easements: None.

62. **Describe all notice or reporting requirements to DSL that you had under an aquatic lands lease or state law or regulation regarding incidents affecting, or activities or operations occurring on leased aquatic lands. Include the nature of the matter required to be reported and the office or official to whom the notice or report went to. Provide copies of all such notices or reports.**

Response:

- Property in Couch's Addition: None.
- East side MGP: None.
- Property near Swan Island: None.
- GASCO: NWN has no information indicating that the State of Oregon has issued a lease for submerged or submersible lands at this location. DSL has granted NWN access to submerged lands pursuant to an Access Agreement for investigation of sediments at the Gasco site related to the Portland Harbor Superfund site. (NWN-GLG0003204.) According to Section 4 of the Access Agreement, NWN is required to provide DSL copies of all work plans, analytical data, and final reports summarizing such analytical data. (Id. at p. 2.) Pursuant to Section 10 of the Access Agreement, NWN has informed DSL of the placement of buoys delineating the work area. (NWN-LGL005348.)

  DSL granted NWN a Temporary Use Permit in October of 2006 in order to conduct additional remedial investigation/feasibility study required of NWN pursuant to an agreement with DEQ. (NWN0007455.)
- Easements: None.

Section 6.0 Releases and Remediation

63. Identify all leaks, spills, or releases into the environment of any waste, including petroleum, hazardous substances, pollutants, or contaminants, that have occurred at or from each Property, which includes any aquatic lands owned or leased by Respondent. In addition, identify and provide copies of any documents regarding:

a. when such releases occurred;

b. how the releases occurred (e.g. when the substances were being stored, delivered by a vendor, transported or transferred (to or from any tanks, drums, barrels, or recovery units), and treated).

c. the amount of each hazardous substances, pollutants, or contaminants so released;

d. where such releases occurred;

e. any and all activities undertaken in response to each such release or threatened release, including the notification of any agencies or governmental units about the release.

f. any and all investigations of the circumstances, nature, extent or location of each release or threatened release including, the results of any soil, water (ground and surface), or air testing undertaken;

g. all persons with information relating to these releases;

h. list all local, state, or federal departments or agencies notified of the release, if applicable; and

Response to 63 a. – h.:

NWN has limited information responsive to this request and has provided as much information as possible.

- Property in Couch's Addition: Releases of tar, and other waste materials, likely occurred as a result of the flood of 1894.

  Reports from1906 indicate the discharge of coal tar and other wastes into the Willamette River from the Portland Gas Manufacturing plant. (NWN0015723.) NWN has no additional information concerning the reported discharge.

- East side MGP: None.

- Property near Swan Island: None.

- GASCO:

  - NWN Gasco Facility:

    - Overflow of wastewater containing petroleum emulsions, light oils, tar, and lampblack from the low-lying areas on the Gasco site may have occurred on occasion in the early years of the plant's operations.

    - Residue lampblack, stored spent oxide, and tar and wastewater in the settling ponds were released to the river during the floods in 1948 and 1965. (Gasco RI, Appendix A.)

    - In late April and early May, 1950, the Portland Harbor Patrol reported to PGC that an oily discharge in the Willamette River was originating from the settling ponds at the Gasco plant. PGC personnel investigated the report of circumstances and how to improve embankments and skimmers to ensure that oily fluid in the settling ponds would not discharge to the river. PGC personnel also sampled oily discharge in the river. Analysis of sample

results revealed that the oil contamination in the river was different than that used at PGC. (NNG408967; NNG408967, -8969; NNG408961, -8963; 408962.) Letters from PGC to the Oregon State Sanitary Authority detailed PGC plans to fortify settling pond embankments, create a secondary settling pond for overflow and to add skimmers to remove oil from the top of the pond. (NNG408967; NNG408928)

- In January 1952, oil apparently leaked from a sewer pipe. The amount leaked is unknown. Oily water traveled from the sewer system toward the Willamette River, but the exact location is unclear. PGC personnel deployed booms and straw bales to contain and soak up the oil at the edge of the river. An investigation by PGC determined that increased water volumes in the pipes due to heavy stormwater runoff likely led to the leak. Company records indicate that J. Ware, L. Johnson and J.F. Bell were involved in addressing the release. The City of Portland Harbor Patrol, Coast Guard and U.S. Army Corps of Engineers were contacted or were notified.

- On February 24, 1956, a fire broke out at the Gasco MGP. The fire grew quickly due to escaping heavy fuel oil. (NNG411595.) Reports of the fire do not detail spills or releases, but it is likely that some materials were released, spilled, discharged, or leaked due to the fire and its aftermath.

- In July 1971, oil seeped from water collecting in the vicinity of the former settling ponds. Apparently, ponds formed from seepage during fill activities. Specific investigation activities are unknown. Company records indicate that Ed Rowan, and a Mr. Devine were involved with the fill activities and addressing the resulting seepage. Portland Harbor Patrol, Oregon DEQ, and the Coast Guard Pollution Control were notified. (HAHN00290.)

- In approximately March 2000, several gallons of oily water discharged overwater from the Gasco facility.

- See also Response to Information Request #16.

o PNO Leasehold:

- In 1998, a fuel oil release estimated at a few gallons occurred at the riverfront into the Willamette River. The

cause of the release is unknown. NWN does not have information concerning agencies informed or action taken.

- o Koppers' Leasehold:
  - In 1969, an unknown quantity of coal tar pitch dust was discharged into the Willamette River. (Draft CSM Site Summary, Gasco Site, p. 8.)
  - A 1979 EPA hazardous waste inventory report indicates that Beazer disposed of wastes from roofing pitch and electrobinding operations in an area measuring approximately 100 by 20 feet at the adjacent Siltronic site. (NWN0015868)
  - In April 2001, leaks were discovered in the water supply system on Koppers Industries' leasehold. The cause of the leaks is unknown as is the amount of water leaked and the potential impacts to soil or groundwater. Koppers personnel notified DEQ of the leak and requested authority to dig exploratory trenches and repair pipes. NW Natural has no information on results. (NWN0012226; NWN010471, 10473.)
  - In 2003, two gallons of coal tar pitch dust were reportedly discharged into the Willamette River. (Draft CSM Site Summary, Gasco Site, p. 8.)
  - See also Response to Information Request #16.
- o Siltronic Property:
  - Site filling activities were conducted on the Siltronic property between 1966 and 1975. Filling involved placement of 1.5 million cubic yards of material on the property, including approximately 700,000 cubic yards of dredge spoils from unidentified locations and 800,000 cubic yards of material imported from a quarry. Depending upon origin, dredged sediments could reasonably have been impacted by many different sources of potential contamination, including ship traffic, industrial operations (such as MGP, wood treating facilities, shipyards, pesticide manufacturing, or petroleum terminals), agricultural activities, or urban run-off. During the time of filling activities, the property was owned by Mr. Victor Rosenfeld and Mr. H.A. Anderson. (Siltronic Remedial Investigation Report, April 16, 2007; Siltronic Remedial Investigation Proposal, 11/17/2006, p. 5.)

- A petroleum leak from the Olympic pipeline at the Siltronic facility was discovered in February 1979 due to holes in the pipeline. The amount of the release is unknown. The leak occurred along the pipeline running northwest through the Siltronic property. Olympic Pipeline Company made repairs. Soil samples were taken, but the results are unavailable. DEQ was notified. (NWN-LGL006306, p. 12.)

- A chromium release occurred at the Siltronic facility in December 1980. The cause of the release is unknown. An estimated 1.3 lbs. of chromium discharged to the river. The release occurred from the wastewater treatment plant's concentrated acid system. Approximately 5.5 pounds of chromium was disposed of at Arlington Hazardous Waste Landfill. It appears that DEQ was notified. (NWN-LGL006306, p. 12.)

- On February 25, 1981, approximately 6,000 gallons of acid etch solution and rinse water containing chromic and nitric acid spilled into a floor drain when an above ground storage tank at the Materials Characterization Production Area (Fab 1 Building) at Siltronic was overfilled. Some of the spilled material was collected within a sump, while the remainder was reportedly collected within the overfilled tank's secondary containment. The material was disposed at the Arlington Hazardous Waste Land Fill No release to underlying soil or surface water was documented as a result of this spill. (NWN-LGL007200, p. 8.)

- On December 3, 1984, approximately 360 gallons of TCE were released from the stripper unit at Siltronic. An approximate 900 gallon additional release occurred on December 31, 1984. Contaminated soils were excavated and sent to Arlington for disposal, and a concrete containment dike and monitoring well were installed. (NWN-LGL006306, p. 12.)

- A TCE plume related to one or more releases near the former underground storage tank system ("USTs") is present on the Siltronic property. The date of the release is unknown. TCE-related impacts are presumably due to one or more releases from USTs and possibly historical release to the Siltronic stormwater system and outfall. The amount released is unknown, but TCE and its degradation products have been detected in deeper push-probe borings and monitoring wells near the river, in transition zone water and

in deeper groundwater below the river in two separate and distinct areas. (RI Proposal—Historical MGP Activities, Siltronic Facility, 11/17/2006.)

- A release of herbicides by Chapmen Chemical reportedly occurred during the 1960s. The cause and amount of the release are unknown. The release occurred at the Siltronic property and potentially migrated through Doane creek to the Willamette River. NWN has no further information on activities or investigation related to this release. NWN's limited information comes from a DEQ site assessment report. (NWN-LGL 006306, p. 12.)

- On June 25, 1987, an overflow of wastewater containing detergent occurred at the Siltronic property. The cause and amount of the release are unknown. NWN has no information on activities or investigation related to such a release. NWN's limited information comes from a DEQ site assessment report. (NWN-LGL 006306, p. 12.)

- On January 11, 1988, pentachlorophenol ("PCP") was identified within one of Wacker-Siltronic's wastewater effluent samples at a concentration of 0.2 ppm. The source of the PCP is unknown. Follow-up sampling conducted on January 27, 1988 indicated the presence of PCP in a combined effluent sample at a concentration of 0.004 ppm. Further follow-up testing of the combined effluent in February, March, and April 1988, did not identify the presence of PCP at concentrations greater than the analytical detection limit of 0.005 ppm. (NWN-LGL007200, p.10.)

- Releases from the Olympic Pipeline occurred in October 1990 and February 1991. The cause and amount of the releases are unknown. The National Response Center[2] and DEQ were notified. Soil, gas and groundwater sampling and pipeline pressure tests were conducted by Olympic pipeline and DEQ, and Olympic Pipeline replaced 2,000 feet of pipeline in March 1991. (NWN-LGL 006306, p. 12.)

- On September 11, 1991, a release of approximately 4,000 gallons of weak acid occurred through a sheared valve at a storage tank at Siltronic property. Approximately 1,000 gallons of the acid was recovered. It appears that the

[2] EMD number 90-1462.

Oregon Emergency Response System was notified of the release.[3] NWN's limited information comes from a DEQ site assessment report. (NWN-LGL 006306, p. 12.)

- A release of caustic rinse water reportedly occurred in April 1997, NWN's limited information comes from a DEQ site assessment report. (NWN-LGL 006306, p. 13.)

- An oil release to the Willamette River apparently occurred during dredging activities conducted on July 29,1998. The total amount of the release is unknown, but 75.72 tons of contaminated soil was reportedly disposed of off-site. The release occurred along the shoreline of the Willamette River during dredging and riverbank repair by Advanced American Diving. Offshore dredging was discontinued at the time of release. (NWN-LGL006306, p. 13.)

- See also Response to Information Request #16.

- Easements: None.

i. Answer the above questions for each of the following releases:

i. the discharge of wastewater from tar stills and unusable petroleum byproducts into the Willamette River;

Response:

NWN objects to this request as duplicative. See Response to Request for Information #16.

ii. the disposal of wastewater from tar stills and unusable petroleum byproducts into settling ponds at the Property;

Response:

NWN objects to this request as duplicative. See Response to Request for Information #16.

iii. the storage of lampblack and spent iron oxide waste in large onsite waste piles;

Response:

[3] OERS number 91-062.

NWN objects to the phrase "large onsite waste piles" as vague and ambiguous. NWN also objects to this request as duplicative. See Response to Request for Information #16.

iv. the discharge of any and all products from gasification operations directly into the Willamette River;

Response:

NWN objects to this request as duplicative. See responses to information requests #16 and #10.e.iii.

v. the separation of wastewater in settling ponds;

Response:

NWN objects to this request as duplicative. See responses to information requests #16 and #10.e.iv.

vi. the burial of wastewater settling ponds;

Response:

- Property in Couch's Addition: None.
- East side MGP: None.
- Property near Swan Island: None.
- GASCO: In the mid-1960s, approximately ten years after the company ceased MGP operations, grading and filling of the narrow settling pond at the Gasco property began. (Gasco RI, p. 20, Appendix A.) The pond contained an estimated 30,000 cubic yards of tar, which was mixed with quarry rock at the site. (Id.) Subsurface boring logs indicate that fill used to form the embankment between the settling pond and the river did not contain tar. The area immediately inland of the embankment does contain some fill mixed with tar. (Id.)

  Placement of fill in the low-lying area on the current Siltronic property, occurred after NW Natural sold the property from about 1966 through 1973. (Id.)

- Easements: None.

vii. the disposal of creosote and pitch into on-site disposal pits;

Response:

NWN objects to this request as duplicative. See responses to information requests #16 and #10.e.v.

viii. **the January 1989 release of 200 gallons of diesel onto the deck of a marine vessel that was docked at the Property; and**

Response: NWN has no information about any such release.

ix. **the dumping of wastes into waste piles, settling ponds, or burying of waste.**

Response:

NWN objects to this request as duplicative. See responses to information requests #16 and #10.e.ii.

64. **Was there ever a spill, leak, release or discharge of waste, including petroleum, or hazardous substances, pollutant or contaminant into any subsurface disposal system or floor drain inside or under a building on the Property? If the Response to the preceding question is anything but an unqualified no, identify:**

Response:

a. **where the disposal system or floor drains were located;**

b. **when the disposal system or floor drains were installed;**

c. **whether the disposal system or floor drains were connected to pipes;**

d. **where such pipes were located and emptied;**

e. **when such pipes were installed;**

f. **how and when such pipes were replaced, or repaired; and**

g. **whether such pipes ever leaked or in any way released such waste or hazardous substances into the environment.**

Response:

On February 25, 1981, approximately 6,000 gallons of acid etch solution and rinse water containing chromic and nitric acid spilled into a floor drain when an above-ground storage tank at the Materials Characterization Production Area (Fab 1 Building) at Siltronic was overfilled. Some of the spilled material was collected within a sump, while the remainder was reportedly collected within the overfilled tank's secondary containment. The material was disposed at the Arlington Hazardous Waste Landfill. No

release to underlying soil or surface water was documented as a result of this spill. (NWN-LGL007200, p. 8.)

65. Has any contaminated soil ever been excavated or removed from the Property? Unless the Response to the preceding question is anything besides an unequivocal "no", identify and provide copies of any documents regarding:

a. amount of soil excavated;

b. location of excavation presented on a map or aerial photograph;

c. manner and place of disposal and/or storage of excavated soil;

d. dates of soil excavation;

e. identity of persons who excavated or removed the soil, if other than a contractor for Respondent;

f. reason for soil excavation;

g. whether the excavation or removed soil contained hazardous substances, pollutants or contaminants, including petroleum, what constituents the soil contained, and why the soil contained such constituents;

h. all analyses or tests and results of analyses of the soil that was removed from the Property;

i. all analyses or tests and results of analyses of the excavated area after the soil was removed from the Property;

j. all persons, including contractors, with information about (a) through (i) of this request; and

Response to information request 65. a-j:

- Property in Couch's Addition:

  Block 7: NWN has limited information about soil removal activities at the Broadway Cab/Old Town Garage site. Soil sampling and excavation of contaminated soils did occur at this site. See documents attached to Table 65.

  In 1986, during the redevelopment of the former Broadway cab property into a garage and heliport, the City of Portland performed investigations of subsurface conditions of the property, including underground storage tanks ("UST") at the property. (GeoTechnical Resources, Inc. Proposed Work Plan, soil and groundwater contamination investigation, 4/7/1987,

NWN0005064.) As a result of the investigation, PDC excavated contaminated soils. (Leaking Underground Tank Report, 12/01/1986, NWN0005080; Subsurface Investigation NW Second Avenue and NW Flanders Street, 03/21/1995, NWN0009255.)

During excavation for redevelopment, additional soils, reportedly containing coal tars, were discovered. (DEQ notes from site inspection, 01/11/1988, NWN0005040.) The City's contractors and consultants, Dan Oberst, Koll Construction and GeoTechnical Resources, excavated and removed the soil. (NWN0004951; NWN0004953; and NWN004946.) The soil removal occurred in January and February of 1988. Soil samples were analyzed for gasoline and coal tar constituents. (NWN0005040.) The contractor informed DEQ that the soils would be disposed of at the Killingsworth landfill. (NWN0004915.)

According to an Agreement to investigate the property entered into by the City of Portland and DEQ, approximately 8,000 cubic yards of contaminated material was excavated from the site during construction and disposed of at an approved landfill. (Interoffice Memorandum Broadway Cab- Portland, Interoffice Memorandum, 03/27/1990, NWN0010516, -524.) Gasoline constituents ("BTEX") continued to contaminate the property even after the removal. (Interoffice Memorandum, 03/27/1990, NWN0010516, -524.)

Block 16— In July 1991, Pegasus Environmental Management Services, Inc. ("Pegasus") decommissioned by removal one 750-gallon waste oil UST from below the sidewalk on the east side of NW Third Avenue, north of NW Everett Street. (Pegasus Environmental Management Services, Inc., *UST Removal Status Report for Northwest Natural Gas Company*, 220 NW 2nd Avenue, Portland, Oregon 97209, 8/21/1991.) As documented in Pegasus' August 1991 report, results of confirmation soil samples collected by Pegasus below the base of the removed UST indicated the presence of a maximum of 5,820 ppm diesel-range petroleum hydrocarbons remaining in-place below the north end of the UST. Analyses of the worst case sample for waste oil constituents (volatile organic compounds, PCBs, and leachable metals) did not indicate the presence of concentrations greater than the most conservative generic Risk-Based Concentrations ("RBCs") in effect. Further, gasoline-range petroleum hydrocarbons were not found to be present immediately beneath the UST at concentrations above laboratory method detection levels.

Pegasus conducted over-excavation activities at the UST pit to remove contaminated soil. (*Sampling Plan for Additional Subsurface Investigation*, HAI, 6/22/2001.) The UST pit was overexcavated to the point at which removal of additional soil could compromise the integrity of NW Third Avenue. Although the lateral and vertical extent of the over-

excavation activities are not known, Pegasus did indicate in an October 22, 1991 letter that soils to a depth of seven feet below the former UST base (approximately 20 feet bgs) were removed for disposal at the Hillsboro landfill. (*Sampling Plan for Additional Subsurface Investigation*, HAI, 6/22/2001.)

HAI conducted subsurface investigation activities related to the former waste oil tank during December 2002 and January 2003 as documented in an April 29, 2003 report. Analytical testing of soil and groundwater samples collected at the subject property indicates gasoline- and diesel-type petroleum hydrocarbons (similar to mineral spirits) are present in subsurface soils in the vicinity of the former waste oil UST. Contaminant delineation activities suggest the presence of 600 cubic yards of petroleum impacted soils extending across depths of 8 to 27 feet below ground surface in the vicinity of the former tank. Testing for risk parameters indicates naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene were found in soil and groundwater at concentrations exceeding the most stringent DEQ risk-screening criteria. A site-specific risk evaluation was completed which concluded that there is not a current or reasonably likely future unacceptable risk to human health or the environment resulting from residual petroleum impacts to soil and groundwater at the property. DEQ issued a "No Further Action" determination for this property on July 28, 2005.

- East side MGP: None.

- Property near Swan Island: None. The property was undeveloped at the time of ownership.

- GASCO:

  Tar Body Removal: NW Natural removed approximately 15,300 cubic yards of tar and sediments within the Willamette River adjacent to the Gasco site with subsequent cap placement between August and November 2005 as a non time-critical removal action under an Administrative Order on Consent with the EPA. The former tar body and dredge prism location are depicted in Figures attached to the Removal Action Completion Report, Removal Action NW Natural "Gasco" Site, Anchor Environmental, LLC, April 2006 ("RACR"). (GASCO010414.) The primary objective of the work was removal of a defined area of visible tar ("the tar body") in river sediments and the riverbank adjacent to the Gasco facility. The dredged material was transported to the Chemical Waste Management Northwest landfill located in Arlington, Oregon.

  Capping involved placement of 7,560 tons of sand and armor material over the approximate 0.39 acre dredge prism, as well as an approximate 2.3 acre surrounding fringe area. In addition, an organoclay mat was

placed on the dredge cut-face along a portion of the shoreline. Pending future implementation of a site-wide remedy, long-term monitoring of the tar body removal action area is being conducted in accordance with the EPA-approved Monitoring and Reporting Plan ("MARP"). The monitoring includes the following activities within the removal action area: visual monitoring, diver surveys and bathymetry surveys, and the collection of depositional surface sediment, sediment cores, porewater, and near-bottom surface water. The removal action is documented in the April 2006 RACR. (GASCO010414.)

IDW and Construction Related Soils: Waste derived from remedial investigation activities is handled pursuant to NWN's Contaminated Media Management Plan. The management and plan for disposal of IDW is reviewed and approved by DEQ prior to disposal. Documentation of IDW disposal is attached at table 65.

In late 2006, NW Natural inspected its 20-inch Front Avenue natural gas transmission pipeline which lies in the vacated NW Front Avenue right of way through the Siltronic property. Federal law requires certain anomalies in the natural gas pipeline to be excavated, evaluated, and repaired, as necessary, within one year of the inspection. Because of the potential that soils at some or all of the excavation locations could be contaminated from historical operations, NWN used special management and disposal procedures for soils generated as part of the pipeline exposure activities. Prior to initiation of work activities, soils were characterized for the presence of contaminants. Disposal methods were outlined in the *Scope of Work for Soil Characterization and Disposal Profiling, Natural Gas Line Exposure and Inspection Work, Siltronic Corporation Property* (prepared for NW Natural by Hahn and Associates, April 2, 2007). All petroleum-contaminated soil generated during excavation activities were disposed at off-site permitted facilities. A spreadsheet summarizing the soils removed for disposal is attached at table 65.

- Easements: In 2001, the Tanner Creek project near 1500 NW Naito Parkway involved the removal of soil for recycling.

k. provide all documentation regarding, but not limited to the following:

i. any soil excavated as a result of a diesel fuel underground storage tank decommissioning;

Response: See table 65(k)(i).

ii. the excavation and removal of a portion of a spent oxide pile. Further provide additional documentation regarding the burial of the remainder of the pile; and

Response:

NWN objects to the request as duplicative. See tables attached in responses to information requests #10.e.ii., #16.h.i., and #17; #22.e.

iii. **any petroleum contamination in the soils, groundwater, and sediment on the Property(ies).**

Response: See table 72.

66. **Have you ever tested the groundwater under your Property? If so, please provide copies of all data, analysis, and reports generated from such testing.**

Response:

- Property in Couch's Addition: No.
- East side MGP: No.
- Property near Swan Island: No.
- GASCO: See Table 72.
- Easements: No.

67. **Have you treated, pumped, or taken any kind of response action on groundwater under your Property? Unless the Response to the preceding question is anything besides an unequivocal "no", identify and provide copies of any documents regarding:**

a. **reason for groundwater action;**

b. **whether the groundwater contained hazardous substances, pollutants or contaminants, including petroleum, what constituents the groundwater contained, and why the groundwater contained such constituents;**

c. **all analyses or tests and results of analyses of the groundwater;**

d. **if the groundwater action has been completed, describe the basis for ending the groundwater action; and**

e. **all persons, including contractors, with information about (a) through (c) of this request.**

Response:

- Property in Couch's Addition – No.
- East side MGP – No.
- Property near Swan Island– No.
- GASCO—Stormwater as well as groundwater from the surficial fill water-bearing zone that seeps into the centrally-located LNG containment basin is removed and treated in a granular activated carbon ("GAC") treatment system prior to discharge. Previously, the discharge flowed to the Willamette River via a permitted outfall. (Gasco RI, p.60.)

  Discharge of treated water (groundwater from the LNG containment basin) to the City of Portland sanitary sewer was initiated on March 16, 2007 under Temporary Wastewater Discharge Permit 500.022 (expires September 15, 2009). Results of NW Natural's effluent sampling are provided to BES in Discharge Monitoring Reports that are submitted for any month that effluent sampling occurs - which is at least every other month in accordance with the permit. As of September 2, 2008, a total of 14,837,702 gallons of treated water have been discharged to the sanitary sewer since initiation of the permit. (NWN-LGL006056.)

  The LNG basin, the base of which (at approximately 18 feet msl) is typically two to seven feet below the adjacent water table, is kept dewatered as required by the Public Utility Commission for health and safety reasons and is not conducted as an interim remediation or source control activity. (Gasco RI, p. 60.) However, because of its large surface area, and its proximity to the highest chemical concentrations within the surficial fill water-bearing zone ("WBZ") (surficial fill well MW-10-26 area), this dewatering activity is removing and treating contaminated groundwater from the site. (Gasco RI, p. 60.)

  As described in a January 2001 DNAPL Recovery System Report (HAI, 2001)(NNG404863), automated DNAPL recovery was initiated at surficial fill well MW-6-32 in August 2000, where DNAPL thicknesses ranging from approximately 3 to 13 feet have been documented within the well.

  The DNAPL recovery system constructed at the MW-6-32 well location consists of a stainless steel pneumatic pump with the intake placed near the base of the well, which is plumbed to an adjacent 500-gallon double-walled steel AST with 100% secondary containment capacity. The system is operated by a 12-volt battery and compressed nitrogen. The battery is continuously recharged via a solar collection panel mounted to one end of the tank. The compressed nitrogen is provided in cylinders that are secured to the end of the product storage tank. The system has been secured within a locked chain-link fence enclosure, and protective guard

posts have been placed around the fenced area, at a spacing of approximately 4 feet. The DNAPL recovery system has been set to pump on various schedules over the course of its operational history, but since June 2001 the system has been set to pump for 6 evenly spaced 10-minute cycles per day, with a very low pumping rate (typically less than 0.2 liters per minute).

Robert Wyatt (NWN), Rob Ede (Hahn and Associates) and John Edwards (Anchor Environmental) have information about these activities.

- Easements: No.

68. **Was there ever a spill, leak, release or discharge of a hazardous substance, waste, or material into the Willamette River from any equipment, structure, or activity occurring on, over, or adjacent to the river? If the Response to the preceding question is anything but an unqualified "no", identify and provide copies of any documents regarding:**

a. the nature of the hazardous substance, waste, or material spilled, leaked, released or discharged;

b. the dates of each such occurrence;

c. the amount and location of such release;

d. were sheens on the river created by the release;

e. was there ever a need to remove or dredge any solid waste, bulk product, or other material from the river as a result of the release? If so, please provide information and description of when such removal/dredging occurred, why, and where the removed/dredged materials were disposed.

Response:

- Property in Couch's Addition: In 1906, reports indicate the discharge of coal tar and other wastes into the Willamette River from the Portland Gas Manufacturing plant. (NWN0015723) NWN has no further information about the reported discharges.
- East side MGP: None.
- Property near Swan Island: None.
- GASCO: See Response to Request for Information #65.
- Easements: None.

69. **For any releases or threatened releases of PCB(s), identify the date, quantity, location and type of PCB(s) or PCB(s) containing materials or liquids, and the nature of any response to or cleanup of the release.**

Response: None.

70. **For any releases or threatened releases of PCB(s) and/or PCB(s) containing materials or liquids, identify and provide copies of any documents regarding the quantity and type of waste generated as a result of the release or threatened release, the disposition of the waste, provide any reports or records relating to the release or threatened release, the response or cleanup and any records relating to any enforcement proceeding relating to the release or threatened release.**

Response: None.

Section 7.0 Property Investigations

71. **Provide information and documentation concerning all inspections, evaluations, safety audits, correspondence and any other documents associated with the conditions, practices, and/or procedures at the Property concerning insurance issues or insurance coverage matters.**

Response: None.

72. **Describe the purpose for, the date of initiation and completion, and the results of any investigations of soil, water (ground or surface), sediment, geology, and hydrology or air quality on or about each Property. Provide copies of all data, reports, and other documents that were generated by you or a consultant, or a federal or state regulatory agency related to the investigations that are described. Include in your response, a map which shows all monitoring wells installed on the Property(ies) listed in the response to Question 4 above. In addition, give the identification system used to identify each monitoring well, state the purpose for which each well was used and give the results obtained from all monitoring conducted at each of the wells.**

Response:

- Property in Couch's Addition:

Block 7: See Responses to Requests for Information #13.j. and 65 related to decommissioning of a UST and investigation and remediation at the Broadway Cab site.

Block 15— NWN's environmental consultant, Hahn & Associates, conducted a site assessment in December of 1996. The assessment did find slightly elevated levels of oil constituents, e.g., PAHs, in shallow soils. (NWN0015727, -5729.) In 1997, Hart Crowser conducted additional investigation of soil and groundwater in the area, including Geoprobe explorations. (NWN0015727.) Investigation revealed heavy oil and associated PAHs in some soil samples. (Id.) See Response to Request for Information 13.h.

Block 16: See Responses to Requests for Information #13.j., 16.h., and 65 related to decommissioning of a waste oil tank.

- East side MGP: None.

- Property near Swan Island: None.

- GASCO: NWN is undertaking three remedial investigations : (1) a remedial investigation and feasibility study ("RI/FS") at the current Gasco property related to historical gas manufacturing operations ("Gasco RI/FS"); (2) an evaluation of potential MGP-related sources of contamination to the Willamette River at the Siltronic property ("Source Control at Siltronic"); and (3) an investigation of potential MGP-related contaminants at the Siltronic property ("MGP-related RI at Siltronic"). In addition, Siltronic is conducting an RI/FS, with DEQ oversight, of TCE contamination at its property. NWN expects that Siltronic will detail that investigation in its response to EPA's Section 104(e) request. A description of that investigation is not included.

  (1) Gasco RI/FS:

  On August 8, 1994, NWN entered into a Voluntary Agreement with DEQ to perform a remedial investigation and feasibility study to determine the nature and extent of contamination at the Gasco property. (Id., 8/8/1994, NWN0007366.) DEQ and NWN negotiated an amendment to the Agreement and a revised scope of work during the summer of 1998. (S-R01236.) The Agreement was amended on July 19, 2006 to require an investigation into the nature and extent of MGP-related impacts in the uplands portion of the Siltronic property.

  Remedial investigations conducted between 1994 and 2006 have defined the nature and extent of manufactured gas plant-related contamination at the upland portion of the former Gasco facility currently owned by NW Natural. Additional investigations to define the extent of contamination in and beneath the adjacent

Willamette River are being performed by NW Natural and by the Lower Willamette Group.

Nature and extent of contamination

- *Product and Non-Aqueous Phase Liquid ("NAPL"):* MGP-related tars and dense non-aqueous phase liquids are present in the surficial fill and upper silt units throughout the former production areas of the historic gas plant, primarily in the former tar pond and effluent discharge areas. In the former tar pond and effluent discharge areas, tars and DNAPL have migrated vertically through root casts into the underlying alluvial unit.

- *Contaminants of Interest ("COIs")*: The key COIs at the Gasco site are polynuclear aromatic hydrocarbons ("PAHs"), benzene and cyanide. Generally, the highest concentrations of PAHs and benzene in soil and groundwater at the site correlate to locations at which product and NAPL are found. The metals arsenic, cadmium, chromium, copper, lead, nickel and zinc, the volatile organics toluene, ethylbenzene and xylene, and certain phenols are also COIs.

- *Surface soils*: PAH concentrations in surface soils exceed screening levels for industrial exposures across much of the site and are highest in the former tar pond area. PAH soil concentrations exceeded ecological screening level values only in the former tar pond area and at one location in the Koppers lease area. Benzene was detected in surface soil only in the former tar pond area, and no benzene concentration exceeded ecological screening level values. Total cyanide was detected in surface soils at concentrations significantly below human health and ecological screening values. Metals were sporadically detected at concentrations exceeding DEQ's established default naturally occurring background concentrations or DEQ Level II screening level values.

- *Subsurface soils*: PAH concentrations in subsurface soils are highest in the former tar pond area. Benzene concentrations in subsurface soils were detected above screening levels in the former tar pond and effluent discharge areas. Total cyanide was detected in subsurface soils at concentrations below human health or ecological screening values. Metals were sporadically detected at concentrations exceeding DEQ's established default naturally occurring background concentrations or DEQ Level II screening level values.

- *Surficial fill groundwater*: Benzene concentrations in groundwater within the surficial fill are highest in the area of the former light oil plant but decrease downgradient to below fish consumption-based screening levels at the top of the bank adjacent to the river. Naphthalene concentrations in groundwater within the surficial fill are highest in the area of the former tar ponds, but those concentrations also decrease to below screening levels at the top of the river bank. Total cyanide concentrations in surficial fill groundwater are highest in the former spent oxide storage areas but are also detected beneath the former tar ponds and in other former production areas. However, free cyanide (the bioavailable fraction of total cyanide) was detected above screening levels at only two locations in surficial fill groundwater, at MW-10-25 in the center of the site and at MW-1-22 in the former spent oxide storage area.

- *Alluvial groundwater*: Benzene concentrations in alluvial groundwater are present in two distinct plumes. A shallower plume extends from beneath the former tar pond area down-gradient toward the river, where it exceeds screening levels at well MW-4-56 near the shoreline. A deeper plume extends from the former effluent discharge area laterally to the south onto the Siltronic property and down-gradient toward the river, where it exceeds screening levels at shoreline wells MW-5-100 and WS-14. Naphthalene concentrations in alluvial groundwater follow similar patterns. Total cyanide was detected in several locations in alluvial groundwater; however, free cyanide has been detected at only a few locations, and at much lower concentrations relative to total cyanide. The down-gradient extent of alluvial groundwater impacts is being evaluated in ongoing off-shore investigations performed to support source control design.

- *Surface water*: PAHs and BTEX concentrations were detected in samples collected from seasonal ponds and a stormwater drainage ditch within the former tar pond area. The ditch has since been hard piped and filled. PAHs were also detected in stormwater discharged from the Koppers lease area to Doane Creek.

- *Air quality*: Indoor/outdoor testing indicated that naphthalene was the only COI that exceeded background or screening levels for indoor air. Both naphthalene exceedances occurred in the Koppers lease area and appeared to be related to coal tar pitch storage and transfer operations being performed by Koppers during the sampling events.

  NWN has continued to collect additional groundwater data, both upland and off shore, to design interim actions to control migration

of NAPL and dissolved contaminants in groundwater. (*Gasco Siltronic Source Control Pilot Plan* (Anchor Environmental LLC, April 2006).) Also, NWN has conducted pilot studies and pumping tests to analyze various remedial alternatives, and conducted a TarGOST DNAPL reconnaissance survey.[4] (GWFFS, Anchor, 11/2007, GASCO014193.)

In November 2007, NWN submitted a draft Groundwater/DNAPL Source Control Focused Feasibility Study ("GWFFS") to DEQ under the Agreement and Joint Order. The draft GWFFS provided an evaluation and recommendation of interim groundwater source control removal actions for the Gasco property and portions of the Siltronic property. The GWFFS evaluates potential removal technologies to minimize the movement into the river of Site chemicals in groundwater and subsurface DNAPL. After evaluating many potential removal technologies, the GWFFS recommended a set of removal technologies for groundwater/DNAPL source controls. (GWFFS, Anchor, 11/2007, GASCO014193.)

DEQ provided comments on the GWFFS on March 21, 2008. Based upon the GWFFS and additional data collected by NW Natural to confirm the location of DNAPL at the Siltronic property, DEQ has directed NW Natural to implement a groundwater extraction and treatment system along the shoreline of the Gasco and Siltronic properties, from the downstream property line of the Gasco site with the US Moorings property to approximately 500 feet upstream of the current Gasco/Siltronic property line. In addition to the groundwater extraction system, DEQ is requiring NW Natural to construct a vertical barrier wall in the vicinity of the shoreline, beginning approximately at the Gasco/Siltronic property line and continuing 690 feet to the north.

NW Natural has begun to design the source control action selected by DEQ. Critical components of the design, including construction materials and methods for the barrier wall, may be influenced by studies to determine whether potential vibration impacts on Siltronic's manufacturing activities from construction of a barrier wall might render construction of a wall infeasible at

[4] TarGost, "tar-specific green optical screening tool" was used to further refine the conceptual site model for occurrence of NAPL within the alluvium. TarGOST is a direct push-delivered LIF instrument that logs the fluorescence of PAHs at depth. The technology was developed with the objective being the identification of NAPL found at former MGP and wood treating sites by sensing the fluorescence of PAHs found in NAPL.

some or all potential wall locations. On September 12, 2008, DEQ approved the proposal developed by NW Natural and Siltronic to evaluate potential vibrations associated with possible construction techniques. Source control design may also be influenced by ongoing evaluations of DNAPL mobility, including a DNAPL Removal Pilot Program currently under development with DEQ.

DEQ originally anticipated providing public notice of its selected action upon its approval of the FFS. DEQ now plans to provide public notice following the Interim (60%) Design Report, which NW Natural expects to submit in December 2008. Due to the additional time DEQ needed for review of the focused feasibility study and the additional studies it has required, construction of the source control system is now expected to commence in 2009. NW Natural is working with DEQ to develop a specific schedule for implementation.

(2) <u>Source Control at Siltronic</u>:

By unilateral order dated October 4, 2000 (the Joint Order), NWN and Siltronic Corp. were required to complete remedial investigation activities sufficient in scope to determine the nature and extent of releases of hazardous substances to Willamette River sediments, and to develop and implement source control measures, if necessary. (November 2003 Preliminary *Source Control Evaluation- Wacker Siltronic Corporation Facility*, 11/2003, Anchor, NWN-LGL007129.)

The Source Control Evaluation Document identified the need for additional studies with regard to a determination for the need to implement source controls at the Siltronic property.

NWN has continued to collect additional groundwater data, both upland and off shore, to evaluate and design interim actions to control migration of NAPL and dissolved contaminants in groundwater. (*Gasco Siltronic Source Control Pilot Plan* (Anchor Environmental LLC, April 2006.) Also, NWN has conducted pilot studies and pumping tests to analyze various remedial alternatives, and conducted a TarGOST DNAPL reconnaissance survey. (GWFFS, Anchor, 11/2007, GASCO014193.)

Based upon the results of the Source Control Evaluation, NW Natural prepared a Groundwater/DNAPL Source Control Focused Feasibility Study ("GWFFS") for the Gasco property and portions of the Siltronic property (these areas are referred to in the GWFFS as "Segment 1" and "Segment 2"). The GWFFS, and ongoing source control design activities, are discussed above. NW Natural

is currently evaluating the need for source control action for the remainder of the Siltronic property ("Segment 3").

(3) **MGP-related RI at Siltronic**:

NWN is performing a separate remedial investigation to determine the nature and extent of apparent manufactured gas plant ("MGP") waste-related impacts at the Siltronic Corporation (Siltronic) property, 7200 NW Front Avenue, Portland, Oregon. The RI is conducted in accordance with NW Natural's Voluntary Agreement with DEQ (No. WMCVC-NWR-94-13) dated August 8, 1994 as amended July 19, 2006. (RI Proposal—Historical MGP Activities, Siltronic Facility, 11/17/2006 ("Siltronic RI Proposal").)

A Remedial Investigation Work Plan—Historical Manufacture Gas Plant Activities, Siltronic Corporation Property ("Siltronic RI Workplan") was submitted to DEQ on October 19, 2007. The Siltronic RI Workplan describes NW Natural's proposed approach to delineating the nature and extent of potential MGP-related impacts on the Siltronic property and to provide data necessary to evaluate potentially complete media-specific exposure pathways (e.g., soil, groundwater, surface water, and air). DEQ has approved the Workplan and implementation is ongoing.

(4) **Other:**

Other RI activities are being conducted by Siltronic under a separate order from DEQ and relate to chlorinated solvent contamination. Additional investigations to evaluate pesticide impacts on the Siltronic property are being conducted by Rhone-Poulenc.

- Easements: None.

73. **Describe any remediations or response actions you or your agents or consultants have ever taken on each Property either voluntarily or as required by any state or federal agency. If not otherwise already provided under this Information Request, provide copies of all investigations, risk assessments or risk evaluations, feasibility studies, alternatives analysis, implementation plans, decision documents, monitoring plans, maintenance plans, completion reports, or other document concerning remediation or response actions taken on each Property.**

Response:

- Property in Couch's Addition: See Response to Request for Information #65.

- East side MGP: None.
- Property near Swan Island: None.
- GASCO: See Response to Request for Information ##72.
    - Riverfront Signage:

      On February 17 1998, warning signs were posted adjacent to the Willamette River as proposed by NW Natural to DEQ in correspondence dated December 19, 1997 and January 28, 1998. The signs were installed along the Gasco/Willamette River shoreline to face approaching watercraft. Signs were posted at approximate 400-foot intervals along the Willamette River shoreline, reading (in English, Spanish, and Vietnamese) "Warning – No Trespassing or Fishing Allowed, Environmental Hazards Exist." All signs were secured above the average high river stage on existing dock or piling structures located immediately off-shore from the Gasco Site. In addition to the preceding signs, a sign provided by the Oregon Department of Human Services ("DHS") describing advisories (also in multiple languages) regarding consumption of certain fish caught from the Willamette River was posted along the shore of the river at the Gasco site on January 17, 2006. The sign was permanently attached to the upstream tie-down dock structure.

    - DNAPL Removal:

      As described in a January 2001 DNAPL Recovery System Report (HAI, 2001)(NNG404863), automated DNAPL recovery was initiated at surficial fill well MW-6-32 in August 2000, where DNAPL thicknesses ranging from approximately 3 to 13 feet have been documented within the well.

      The DNAPL recovery system constructed at the MW-6-32 well location consists of a stainless steel pneumatic pump with the intake placed near the base of the well, which is plumbed to an adjacent 500-gallon double-walled steel AST with 100% secondary containment capacity. The system is operated by a 12-volt battery and compressed nitrogen. The battery is continuously recharged via a solar collection panel mounted to one end of the tank. The compressed nitrogen is provided in cylinders that are secured to the end of the product storage tank. The system has been secured within a locked chain-link fence enclosure, and protective guard posts have been placed around the fenced area, at a spacing of approximately 4 feet. The DNAPL recovery system has been set to pump on various schedules over the course of its operational history, but since June 2001 the system has been set to pump for 6 evenly spaced 10-minute cycles per day, with a very low pumping rate (typically less than 0.2 liters per minute).

The recovery system currently receives weekly inspections to ensure it remains charged with nitrogen and is otherwise operational. A pumping cycle is observed during each inspection to ensure that the cycle duration is set for optimum DNAPL recovery (e.g., minimal groundwater content). DNAPL recovery volume is determined during each routine check of the recovery system by physically measuring the depth of liquid in the product storage tank with the use of a calibrated (in gallons) gauging stick. As of December 2007, approximately1,247 gallons of liquid, primarily composed of DNAPL (estimated at 90%, based on previous observations), have been recovered since August of 2000.

Recovered oil/groundwater mixture is stored in the AST until the tank is nearly full, at which time the liquid is removed and transported to an off-site location for re-refining and reuse. Because it is re-refined, the liquid is exempt from regulation as a solid or hazardous waste (Table 1 of 40 C.F.R. § 261.2) and is classified as "Discarded Fuel Product for Reclamation," consistent with DEQ's Policy Number 96-002 entitled *Petroleum Contaminated Wastewater Management.*

- Cathodic Protection Groundbed Boring Decommissioning

As identified during RI activities at the Gasco Site, two adjacent pipeline corrosion-protection groundbed boreholes were present within an area of known soil and groundwater contamination near the southern corner of the NW Natural property (mixing station area, near the MW-12 well cluster). Because the design of the groundbeds did not provide for assurance that they would not act as a preferential conduit for shallow to deep contaminant migration, NW Natural proposed the two groundbeds be decommissioned as an interim remedial action measure in accordance with an HAI-prepared Work Plan dated July 24, 1998 (HAI, 1998). (NNG401805.)

The two groundbeds consisted of borings drilled into bedrock, in which sacrificial anodes, coke breeze, and gravel had been placed. The anodes were in turn connected to nearby underground natural gas pipelines via cables such that corrosion of the pipe lines would not occur. Each of the two groundbeds were completed within bedrock and extended to a total depth of approximately 400 feet bgs. Groundbed materials were placed within a 10-inch diameter surface casing extending to 20 feet bgs, beneath which was an uncased 8 3/4-inch diameter borehole to total depth. The older of the two groundbeds was installed in 1976, while the newer ground bed was installed in 1985. Because the upper 150 feet of the two groundbeds were likely backfilled with gravel, it was concluded that the groundbeds had the potential to act as a preferential conduit for shallow to deep contaminant migration, and therefore the decommissioning of these groundbeds was deemed appropriate to eliminate this potential conduit.

Details concerning all aspects of decommissioning activities, which occurred from February 23, 2000 until March 17, 2000 using an air-rotary drilling rig, are included within a May 10, 2002 *Report on Anode Groundbed Abandonment Activities* (HAI, 2002). (GASCO000855.) As detailed in the report, supplemental groundwater sampling and down hole camera work within the bedrock borehole was also conducted as part of the decommissioning activities. All groundbed decommissioning activities were successful in removing a significant mass of contaminated groundbed material along with the construction of a permanent seal to effectively isolate known zones of contamination within the surficial fill from the un-impacted basalt WBZ. (HAI, 2002.)

- LNG Containment Basin Dewatering and Treatment:

Stormwater as well as groundwater from the surficial fill water-bearing zone that seeps into the centrally-located LNG containment basin (former tar thickener, naphthalene plant, and briquette plant area) is removed and treated in a granular activated carbon ("GAC") treatment system prior to discharge to the City of Portland POTW. See Response to Request for Information #67.

The LNG basin, the base of which (at approximately 18 feet msl) is typically 2 to 7 feet below the adjacent water table, is kept dewatered as required by the Public Utility Commission for health and safety reasons and is not conducted as an interim remediation or source control activity. However, because of its large surface area, and its proximity to the highest chemical concentrations within the surficial fill WBZ (surficial fill well MW-10-26 area), this dewatering activity is removing and treating contaminated groundwater from the site. See Responses to Requests for Information #13.g. and 67.

- Tar Pond Area Surface Water Ditch Elimination:

In late May 2005, Cherokee General Corporation ("Cherokee") installed a new pipeline in the location of a former open storm water ditch within the Tar Pond portion of the Gasco site. (Gasco RI, Figure 4.) The stormwater ditch was eliminated as a source control measure to prevent stormwater from picking up and transporting contaminated soil or sediments as it flowed through the former tar pond area within this conveyance. In eliminating this ditch, Cherokee graded the bottom of the existing ditch to ensure flow towards the Willamette River. An 8-inch diameter PVC pipe was then placed on the bottom of the ditch and the following four existing pipelines were connected to the new PVC pipe using flexible pipe couplings:

- Storm water and an annual discharge of non-contact cooling water from NW Natural's LNG Plant (two pipelines).

- Storm water from the FAMM lease area (one pipeline).

- Treated water from the on-site activated carbon water treatment system (one pipeline). Since March 2007, this water has been discharged to the City of Portland POTW. See Response to Request for Information #67.

- Willamette River Tar Body Removal:

  NW Natural removed approximately 15,300 cubic yards of tar and sediments within the Willamette River adjacent to the Gasco site with subsequent cap placement between August and November 2005 as a non-time-critical removal action under an Administrative Order on Consent with the EPA. The former tar body and dredge prism location are depicted in Figures attached to the RACR. (GASCO010414.)

  The primary objective of the work was removal of the tar body in river sediments and the riverbank adjacent to the Gasco facility. The dredged material was transported to the Chemical Waste Management Northwest landfill located in Arlington, Oregon. Capping involved placement of 7,560 tons of sand and armor material over the approximate 0.39 acre dredge prism, as well as an approximate 2.3 acre surrounding fringe area. In addition, an organoclay mat was placed on the dredge cut-face along a portion of the shoreline. Pending future implementation of a site-wide remedy, long-term monitoring of the tar body removal action area is being conducted in accordance with the EPA-approved Monitoring and Reporting Plan ("MARP"). The monitoring includes the following activities within the removal action area: visual monitoring, diver surveys and bathymetry surveys, and the collection of depositional surface sediment, sediment cores, porewater, and near-bottom surface water. The removal action is documented in the RACR. (GASCO010414.) See also response to Request 65.

- Easements: None.

74. Are you or your consultants planning to perform any investigations of the soil, water (ground or surface), geology, and hydrology or air quality on or about the Property? If so, identify:

a. what the nature and scope of these investigations will be;

b. the contractors or other persons that will undertake these investigations;

c. the purpose of the investigations;

d. the dates when such investigations will take place and be completed; and

e. where on the Property such investigations will take place.

Response to 74.a -e:

- Property in Couch's Addition: DEQ has recently requested that NWN provide an environmental site assessment of the Portland Gas Manufacturing site (Blocks 5 and 6). In August 2008, NWN submitted a proposed plan to prepare a summary of available historic information on the former Portland Gas Manufacturing Site. Also in August 2008, NWN submitted a proposed scope of work for sediment investigation near the location of the former Portland Gas Manufacturing plant (former Block 5). The scope of work proposes field investigation including collection of sediment samples, lab testing, and data evaluation and reporting.

  NWN is currently negotiating an Administrative Consent Order with DEQ for this work.

- East side MGP: No.

- Property near Swan Island: No.

- GASCO:

  (1) Gasco RI/FS.

  NWN is awaiting DEQ comments on the Revised Baseline Ecological and Human Health Risk Assessment Report (Anchor, 11/2004) submitted to DEQ in 2004. (GASCO002572.) Upon approval of the risk assessment, NWN plans to conduct a feasibility study of upland remediation alternatives.

  NWN's consultants are currently planning stormwater investigations pursuant to the Source Control Data Gaps Work Plan, July, 2007, NW Natural Gasco Site. (GASCO080879); Source Control Data Gaps Work Plan, Section 2, Anchor Environmental, November 2007. (NWN-LGL005689).

  As Described in Response to Information Request #72, NWN anticipates performing certain studies related to the design of source control measures.

  (2) Source Control at Siltronic.

NWN's consultants are currently planning stormwater investigations pursuant to the Source Control Data Gaps Work Plan, July 2007, NW Natural Gasco Site (GASCO080879); Source Control Data Gaps Work Plan, Section 2, Anchor Environmental, November 2007. (NWN-LGL005689.)

As described in Response to Information Request #72, NWN is in the process of and anticipates performing certain studies related to the design of source control measures for the Gasco shoreline and the northern portion of the Siltronic property (identified as the Segments 1 and 2). NW Natural is currently evaluating the need for source control for the central and southern portion of the Siltronic property (identified as Segment 3).

(3) MGP-related RI at Siltronic.

As described in Response to Information Request #72, remedial investigations into the nature and extent of MGP-related materials at the Siltronic property are in progress.

(4) Gasco sediments.

NW Natural is discussing design of further actions to address sediments adjacent to the Gasco facility with EPA.

- Easements: No.

Section 8.0 Corporate Information

75. Provide the following information, when applicable, about you and/or your business(es) that are associated with each Property identified in response to Question 4:

a. State the current legal ownership structure (e.g., corporation, sole proprietorship);

Response: Corporation.

b. State the names and current addresses of current and past owners of the business entity or, if a corporation, current and past officers and directors;

Response: See Attachment A.

c. Discuss all changes in the business' legal ownership structure, including any corporate successorship, since the inception of the business entity. For

example, a business that starts as a sole proprietorship, but then incorporates after a few years, or a business that is subsequently acquired by and merged into a successor. Please include the dates and the names of all parties involved;

Response:

NWN is 149 years old. The information below is based on historical research.

`7/1/1958	Name Change - Portland Gas & Coke Company changed its name to Northwest Natural Gas Company d/b/a NW Natural.
12/31/1951	Recapitalization Plan for Portland Gas & Coke Company's capital stock in accordance with the enactment of the Public Utility Holding Company Act of 1935 under SEC File Number 54-146 and Civil Action number 6196.
12/31/1934	East Portland Gas Light Company was dissolved.
1/12/1910	Portland Gas & Coke Company purchased East Portland Gas Light Company (to the extent it was not purchased during the acquisition of Portland Gas Company).
1/10/1910	Portland Gas & Coke Company purchased Portland Gas Company from James G. Wilson.
1/10/1910	Portland Gas Company sold its business including franchises, property as a whole of the Seller, and capital stock to James G. Wilson.
1/10/1910	Portland Gas & Coke Company was incorporated.
8/31/1892	Portland Gas Light Company sold to Portland Gas Company all of its property, rights, franchises, assets and effects of every kind which was used by it or connected in any manner with its business.
7/30/1892	Portland Gas Company was incorporated.
9/4/1882	East Portland Gas Light Company was incorporated (We believe that the franchise granted in City of East Portland Ordinance #314 was transferred to East Portland Light Gas Company in Ordinance #8101).
1/9/1882	Ordinance number 314 authorizing and empowering E. W. Leonard, J. Elliot Condict, C. E. Bellinger, J. M. Gearin, Wm. Underhill, and their associates or their successors, were granted a franchise to lay gas mains and pipes in

	the streets and alleys of East Portland, Oregon by City of East Portland in Ordinance #314.
4/10/1875	Henry D. Green sold his franchise to Portland Gas Light Company.
10/24/1862	Portland Gas Light Company was incorporated.
1/7/1859	Henry D. Green was granted a franchise to establish a Gas Manufactory in the city of Portland, Multnomah County, Territory of Oregon by the Legislative Assembly of the Territory of Oregon.

d. The names and addresses of all current or past business entities or subsidiaries in which you or your business has or had an interest that have had any operational or ownership connection with the Properties identified in response to Question 4. Briefly describe the business activities of each such identified business entities or subsidiaries; and

Response:

See Response to Request for Information #75(c) above. Certain subsidiaries were created after formation of Portland Gas & Coke Company in 1910 but no longer exist today. With the exception of one, we do not believe any of these subsidiaries had any control over the properties subject to this information request. One subsidiary, Pacific Square Corporation, was a wholly-owned subsidiary of NW Natural incorporated on December 12, 1980 for the purpose of creating a joint venture with Hayden Island, Inc., a Delaware corporation, called Pacific Square Associates. Pacific Square Associates was formed on February 26, 1981 and was created to develop the property that is now known as One Pacific Square located at 220 NW Second Ave., Portland, OR 97209. There were certain Rights of First Refusal and real estate sale and lease documents between Pacific Square Associates and Northwest Natural Gas Company. Pacific Square Corporation was dissolved on May 18, 1995.

e. If your business formerly owned or operated a Property identified in response to Question 4, describe any arrangements made with successor owners or operators regarding liability for environmental contamination or property damage.

Response:

- Property in Couch's Addition:

Block 16—In the June 1999 lease to the City of Portland, NWN and the City agreed that the City would be responsible for the first $100,000 of environmental investigation and remediation costs, if any. NWN agreed to pay costs exceeding $100,000, but not to exceed $300,000, for a maximum total liability of $400,000.

- East side MGP: NWN is unaware of any arrangements made with any successor owners or operators regarding liability for environmental contamination or property damage on the subject properties.

- Property near Swan Island: NWN is unaware of any arrangements made with any successor owners or operators regarding liability for environmental contamination or property damage on the subject property.

  GASCO: NWN is not aware of any arrangements made with any successor owners or operators regarding liability for environmental contamination or property damage on the subject properties.

76. List all names under which your company or business has ever operated and has ever been incorporated. For each name, provide the following information:

a. whether the company or business continues to exist, indicating the date and means by which it ceased operations (e.g., dissolution, bankruptcy, sale) if it is no longer in business;

Response:

Prior to 1910, there were business entities, other than those identified in Answer 75 (c), that were acquired by the business entities that ultimately became Northwest Natural Gas Company, however we believe these additional entities were not associated with the properties subject to this information request.

Company	Dates	Means by which the Company ceased operations
Northwest Natural Gas Company	Currently Operating.	
Portland Gas & Coke Company	7/1/1958	Name Change to Northwest Natural Gas Company.
East Portland Gas Light Company	12/31/1934	Dissolved with Oregon Secretary of State.

East Portland Gas Light Company	1/12/1910	Portland Gas & Coke Company purchased East Portland Gas Light Company (to the extent it was not purchased during the acquisition of Portland Gas Company).
Portland Gas Company	1/10/1910	Portland Gas Company sold its business including franchises, property as a whole of the Seller, and capital stock to James G. Wilson. On the same date, Portland Gas & Coke Company purchased Portland Gas Company from James G. Wilson. It is not clear whether this was a stock or asset transaction, nor is it clear whether the Portland Gas Company was dissolved.
Portland Gas Light Company	7/30/1892	Portland Gas Light Company sold to Portland Gas Company all of its property, rights, franchises, assets and effects of every kind which was used by it or connected in any manner with its business. It is not clear whether this was a stock or asset transaction, nor is it clear whether the Portland Gas Light Company was dissolved.
	1/9/1882	1/9/1882 - We believe by Ordinance #8101 this franchise was transferred to East Portland Gas Light Company.
Henry D. Green franchise	4/10/1875	Henry D. Green sold franchise to Portland Gas Light Company.

b. names, addresses, and telephone numbers of all registered agents, officers, and operations management personnel; and

Response:

The Registered Agents in Oregon	**Dates**	**Addresses and Telephone Numbers**
H. N. Burnside	4/14/1954* - 4/29/1983	Address and telephone number not known
C. J. Rue	4/29/1983 - 1/7/2008	220 NW Second Avenue, Portland, OR 97209 - 503-226-4211
Richelle Luther	1/7/2008 - 6/25/2008	14375 NW Science Park Drive, Portland, OR 97209 503-985-4000
Margaret Kirkpatrick	6/25/2008 - 9/25/2008	220 NW Second Avenue, Portland, OR 97209 503-226-4211
MardiLyn Saathoff	9/25/2008 - Current	220 NW Second Avenue, Portland, OR 97209 503-226-4211
*We do not have any information regarding registered agents prior to 1954		
Officers - Current	**Officers - Current**	**Addresses and**

		Telephone Numbers
Mark S. Dodson - CEO	Stephen Feltz - Treasurer & Controller	Current Officers: 220 NW Second Avenue Portland, Oregon 97209 503-226-4211
Gregg Kantor - President & COO	J. Keith White - VP	
David Anderson - SVP & CFO	David R. Williams - VP	
Lea Anne Doolittle - SVP	Grant M. Yoshihara - VP	
Margaret Kirkpatrick - VP & General Counsel	C. Alex Miller - Assistant Treasurer	
MardiLyn Saathoff - Corporate Secretary & CGO	John T. Hood - Assistant Secretary & Assistant Treasurer	

Officers - Past (in alphabetical order beginning in 1910)

We do not have current contact information for all past officers. We expect that many of them are deceased.

Charles F. Adams

M. H. Arning

R. G. Barnett

James F. Bell

B. H. Brewster

Virginia Vance Burgess

H. N. Burnside

Roger L. Conkling

Wesley A. Cook

Norman O. Crawford

Bruce R. DeBolt

Patrick D. Dignan

J. J. Erkins

Samuel S. Ericsson

Dwayne L. Foley

Lucille M. Gannon

William L. Gibbs

A. S. Grenier

C. V. Griffith

Charles H. Gueffroy

Elmon L. Hall

William R. Harper, Jr

Paul L. Hathaway Jr.

J. G. Hawkins

G. J. Hickman

E. W. Hill

Francis F. Hill

Chas. R. Holloway Jr.

Paul H. Howe

Diana J. Johnston

John A. Laing

Walter C. Lang

D. B. Larson

John Lobdell

Joseph S. Long

Officers - Past (in alphabetical order beginning in 1910)

George F. Mackenzie

H. L. Martin

Willard J. Mayfield

Michael S. McCoy

Paul B. McKee

Donald J. Miller

Ronald T. Miller

George L. Myers

George F. Nevins

Patrick B. O'Rourke

Hilmar M. Papst

Harold M. Pierce

C. W. Platt

Harry A. Poth Jr.

Wesley E. Radford

A. C. Ray

William Reiser

Richard G. Reiten

Robert L. Ridgley

C. A. Roberts

C. J. Rue

Bruce B. Samson

John R. Savage

Robert G. Schuur

Frank Silliman Jr.

K. G. Skinner

Joseph R. Smith

B. C. Stearns

Noble H. Stephens

E. P. Summerson

F. G. Sykes

Guy W. Talbot

Beth A. Ugoretz

John Van Bladeren

James J. Vistica

Niel A. Weathers

G. Richard Weaver

M. J. Wilkinson

D. James Wilson

James G. Wilson

Operations Management Personnel

Operations
management
personnel are too

numerous to list.

c. names, addresses, and telephone numbers of all subsidiaries, unincorporated divisions or operating units, affiliates, and parent corporations if any, of the Respondent.

Response: **Current Subsidiaries of NW Natural**		**Address & Telephone Numbers**
NNG Financial Corporation	wholly-owned	Current Subsidiaries: 220 NW Second Avenue Portland, OR 97209 503-226-4211
Northwest Energy Corporation	wholly-owned	
Gill Ranch Storage, LLC	wholly-owned	
Palomar Gas Holdings, LLC (50%)	50% ownership	
KB Pipeline Company	wholly-owned subsidiary of NNG Financial Corporation	
Northwest Energy Sub Corporation	wholly-owned subsidiary of Northwest Energy Corporation	
Palomar Gas Transmission, LLC	wholly-owned subsidiary of Palomar Gas Holdings LLC	

Subsidiaries formed after incorporation of the Portland Gas & Coke Company in 1910 that no longer exist today include:
Pacific Square Corporation (wholly-owned subsidiary of Northwest Natural Gas Company incorporated on December 12, 1980 and dissolved on May 18, 1995).
Oregon Natural Gas Development Corporation (wholly-owned subsidiary of Northwest Natural Gas Company incorporated on January 10, 1979 and merged into Northwest Natural Gas Company on June 28, 1996).
NNG Energy Systems, Inc. (majority-owned (90%) subsidiary of Northwest Natural Gas Company incorporated on October 2, 1985 and dissolved on January 16, 1996).
Agrico GP (wholly-owned subsidiary of Agrico Cogeneration Corporation formed on July 20, 1992 and dissolved on December 15, 1994).
Biogas Technology Inc., formerly known as NW Geothermal Corporation (wholly-owned subsidiary of Northwest Natural Gas Company incorporated on May 4, 1978 and merged into Oregon Natural Gas Development Corporation on March 1, 1988).
Canor Energy Ltd. (wholly-owned subsidiary of Oregon Natural Gas Development Corporation incorporated on August 20, 1990 and dissolved on January 26, 2000).
Agrico Cogeneration Corporation (wholly-owned subsidiary of NNG Energy Systems, Inc. incorporated on December 16, 1986 and dissolved on November 15, 1995 in connection with a bankruptcy).
NNG Capacity Corp. (wholly-owned subsidiary of NNG Financial Corp. incorporated on

January 24, 1994 and merged into NNG Financial Corp. on January 30, 2006).

77. **Provide all copies of the Respondent's authority to do business in Oregon. Include all authorizations, withdrawals, suspensions and reinstatements.**

Response: Attached

78. **If Respondent is, or was at any time, a subsidiary of, otherwise owned or controlled by, or otherwise affiliated with another corporation or entity, then describe the full nature of each such corporate relationship, including but not limited to:**

Response:

a. **a general statement of the nature of relationship, indicating whether or not the affiliated entity had, or exercised, any degree of control over the daily operations or decision-making of the Respondent's business operations at the Site;**

Response:

On December 31, 1951, the Third Amended Plan for Rearrangement of Capital Structure pursuant to Section 11 of the Public Utility Holding Company Act of 1935, approved by the SEC by Order No. 54-146, became effective. Under this plan Portland Gas & Coke Company could no longer be a subsidiary of a holding company. After this time, Portland Gas & Coke Company and its successor Northwest Natural Gas Company has had a diverse shareholder base and has not been a subsidiary of any other legal entity.

Between January 10, 1910 and December 30, 1951 the vast majority of Portland Gas & Coke Company's stock was owned by American Power & Light Company. We believe, but cannot confirm, that American Power & Light Company was a subsidiary of Electric Bond and Share Company. Immediately prior to the Third Amended Plan for Rearrangement of Capital Structure, American Power & Light Company held all 311,130 shares of outstanding common stock of Portland Gas & Coke Company and no shares of the outstanding 53,985 shares of the 7% preferred stock and the outstanding 8,712 shares of the 6% preferred stock of Portland Gas & Coke Company.

We are unable to determine whether American Power & Light Company or Electric Bond and Share Company had any degree of control over the daily operations or decision-making of the business operations at the Site.

b. the dates such relationship existed;

Response:

See Responses to Requests for Information # 75(c), 76(a), and 78(a).

c. the percentage of ownership of Respondent that is held by such other entity(ies);

Response:

See Responses to Requests for Information # 75(c), 76(a), and 78(a).

d. for each such affiliated entity provide the names and complete addresses of its parent, subsidiary, and otherwise affiliated entities, as well as the names and addresses of each such affiliated entity's officers, directors, partners, trustees, beneficiaries, and/or shareholders owning more than five percent of that affiliated entity's stock;

Response:

NWN believes American Power & Light Company was a subsidiary of Electric Bond and Share Company. We do not have names or addresses of these entities nor any names and addresses of any officer, director, partner, trustee, beneficiaries and shareholders owning more than five percent of these entities stock.

e. provide any and all insurance policies for such affiliated entity(ies) which may possibly cover the liabilities of the Respondent at each Property; and

Response: None.

f. provide any and all corporate financial information of such affiliated entities, including but not limited to total revenue or total sales, net income, depreciation, total assets and total current assets, total liabilities and total current liabilities, net working capital (or net current assets), and net worth.

Response: None.

79. If Respondent is a partnership, please describe the partnership and provide a history of the partnership's existence. Provide a list of all current and past partners of any status (e.g., general, limited, etc.) and provide copies of all documents that

created, govern, and otherwise rules the partnership, including any amendments or modifications to any of the originals of such documents, and at least five years of partnership meeting minutes.

Response: N/A

Section 9.0 Compliance With This Request

80. Describe all sources reviewed or consulted in responding to this request, including, but not limited to:

a. the name and current job title of all individuals consulted;

b. the location where all sources reviewed are currently reside; and

c. the date consulted.

Response:

NWN reviewed thousands of corporate files, including archival materials, to compile documents responsive to EPA's Section 104(e) request. In addition, NWN has reviewed our environmental consultants' files, which contain hundreds of thousands of pages of material, and legal files to respond to this request. These materials were consulted from February 2008 through September 2008 in responding to this request.

NWN consulted the following people in response to this request:

Sandra K. Hart, Director, Risk, Environment and Land.

Robert Wyatt, Environmental Compliance Specialist.

Steven Walti, Supervisor, Risk, Environment, and Land.

Shawn Filippi, Staff Attorney.

Kimberlee Anderson, Investor Relations/Shareholder Services Specialist.

John Edwards, Senior Consultant, Anchor Environmental, LLC.

Carl Stivers, Anchor Environmental, LLC.

81. If not already provided, identify and provide a last known address or phone number for all persons, including Respondent's current and former employees or agents, other than attorneys, who have knowledge or information about the generation, use,

purchase, storage, disposal, placement, or other handling of hazardous materials at, or transportation of hazardous substances, waste, or materials to or from, each Property identified in response to Question 4.

Response: N/A

82. **If any of the documents solicited in this information request are no longer available, please indicate the reason why they are no longer available. If the records were destroyed, provide us with the following:**

    a. **the document retention policy between 1937 and the present;**

    b. **the approximate date of destruction;**

    c. **a description of the type of information that would have been contained in the documents;**

    d. **the name, job title and most current address known by you of the person(s) who would have produced these documents; the person(s) who would have been responsible for the retention of these documents; the person(s) who would have been responsible for destroying the documents; and the person(s) who had and/or still have the originals or copies of these documents; and**

    e. **the names and most current addresses of any person(s) who may possess documents relevant to this inquiry.**

    Response: N/A

83. **Provide a description of all records available to you that relate to all of the questions in this request, but which have not been included in your responses.**

    Response: N/A

DECLARATION

NWN objects to the "Declaration" required by the Instructions to this Information Request. We are unaware of any legal basis for EPA's requirement that Respondents sign a declaration under penalty of perjury. Neither 42 U.S.C. § 9604(e) nor 18 U.S.C. § 1001 require a respondent to swear under penalty of perjury that a response to a CERCLA § 104(e) information request is "complete, true and correct." Such a declaration is required in civil actions under Federal Rules of Civil Procedure 26, but EPA guidance clearly states that a CERCLA information request differs from discovery requests submitted in conjunction with a civil action filed in court. Guidance on use and enforcement of CERCLA information requests and administrative subpoena (OSWER #9834.4-A, August 25, 1988) (information gathering according to Section 104(e) is not the legal or functional equivalent to discovery in a civil proceeding).

NWN has responded to EPA's information request as accurately and completely as possible based upon an exhaustive review of existing NWN records and other information available to the Company upon reasonable inquiry and given the imposed time constraints. The information request seeks information concerning nearly 150 years of operations and activities. Given that time span and the breadth of the request, documents have certainly been lost or destroyed, people involved in the activities (indeed, most such people) have left the company or died, and memories have faded. Therefore, the response is necessarily incomplete. As instructed by the request for information, NWN has provided the best information available. As noted in EPA's cover letter, NW Natural may supplement the response if additional information becomes available or known to NW Natural after submission of this response.

Subject to these objections, having completed this response to the best of the Company's knowledge, information and belief formed after reasonable and good faith inquiry within the imposed time constraints, and based upon the statement of the Office of Regional Counsel that a response that does not include a signed declaration in the form included in the information request will be considered incomplete and subject the respondent to civil or criminal penalties, NWN makes the following declaration:

I declare under penalty of perjury that I am authorized to respond on behalf of Respondent and that the foregoing is complete, true, and correct.

Executed on September 30, 2008.

Margaret D. Kirkpatrick
Signature

Margaret D. Kirkpatrick
Type or Print Name

Vice President and General Counsel
Title

Mailing Address:
220 NW Second Ave
Portland, Oregon 97209